A Two-Fold Investigation with High Worriers: Utilising the Emotional Disclosure Paradigm and Exploration of Associated Emotional Variables

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Abstract

Worrying is a process that often gets utilised to mull over upcoming events whose outcome is uncertain or as a strategy for solving-problems. For some people worry appears to take on a life of its own and becomes uncontrollable and excessive. Moreover, excessive worry is a defining feature of a disorder known as Generalised Anxiety Disorder (GAD). Avoidance Theory of worry and GAD argues that excessive worry enables the avoidance of negative emotions and its associated somatic symptoms; thus inhibiting emotional processing. Whilst much is known about worry, little is known about GAD which has been shown to be treatment resistant. The purposes of this study were to 1) promote emotional processing in high worriers utilising J.W. Pennebaker's writing paradigm and 2) investigate other factors associated with the maintenance of excessive worrying, such as coping styles and trauma variables. Twenty-six participants from the University of Canterbury were assigned to either the emotional processing or control group and data was collected on worry at baseline, at the conclusion of the writing phase and at 1-month follow-up. Participants also completed indices relating to coping styles, avoidance and trauma. The results found a significant reduction in worry for the experimental and control group which was inconsistent with the prediction. Furthermore, significant relationships were found between high worry and trauma variables plus high worry and maladaptive coping strategies. Not surprisingly, worry was also found to be associated with anxiety and rumination. Trauma and avoidance variables, along with rumination were further explored and found to significantly predict baseline worry scores. Findings found support for the emotional disclosure paradigm as a means of facilitating emotional processing. Implications for these data were discussed in relation to avoidance theory and future directions.

Chapter 1

1. Introduction

Individuals experience a range of emotions and psychological states. Each of these is adaptive in the sense that they serve to guide behaviour in response to environmental stimuli. However, for some people such internal experiences are not responded to rather attempts are made often by engaging in cognitive activities to avoid, circumvent or dull their emotional world. It is argued that worry is one such cognitive activity. For example, avoidance theory of worry and Generalised Anxiety Disorder proposes that chronic worriers do so to avoid negative emotion and its associated somatic symptoms, thus inhibiting emotional processing (Borkovec, Alcaine, & Behar, 2004). Such avoidance is quite successful in muting the experience of negative emotion and anxiety but over the long term only serves to strengthen worrying. Thus, chronic worry develops; resolution of underlying problems never occurs and life is spent either thinking about past or future events.

1.1 Emotional Processing

Emotional processing was first defined by Rachman (1980) as a "process whereby emotional disturbances are absorbed, and decline to the extent that other experiences and behaviour can proceed without disruption" (p. 51). He proposed that if an emotional intrusion is not processed satisfactorily then signs become evident in the future. Such

signs can be either direct and overt or indirect and subtle. According to Rachman (1980) the indirect signs of incomplete processing can include a lack of concentration, restlessness or irritability, whereas direct signs can include pressured speech, obsessions, flashbacks and nightmares. Rachman (2001) further states that successful emotional processing can be gauged from an individual's ability to discuss, observe, listen to or be reminded of significant events without experiencing distress or disruptions.

Rachman's (1980, 2001) view of emotional processing provided the conceptual groundwork for understanding this process and research conducted by Foa and Kozak (1986) led them to broaden his definition based on their work in the treatment of fear. They proposed that emotions are typified by information structures in memory and fear occurs for example when an information structure that serves as a representation for escape or avoidance is activated. In addition to response elements, a fear structure is also proposed to include information about the meaning of stimuli and responses. Foa and Kozak (1986) argue that in order for fear reduction to occur certain conditions must be met. First, relevant information must be made available in a way that activates the fear structure. Secondly, information made available must contain aspects that are incompatible with information previously held. Thus, Koa and Kozak (1986) defined emotional processing as the "incorporation of new information into an existing structure that allows for either increased or decreased emotional responding" (p. 22).

Experiential approaches have traditionally defined emotional processing in the broader sense, conceptualising emotion as a source of adaptive information and not solely as

dysfunctional (Greenberg, 1984). From this perspective, emotional processing is thought to occur in stages (Pos, Greenberg, Goldman & Korman, 2003). The first two stages involve attending to one's emotional experience with the capacity to allow and accept being in contact with their emotions. These two stages are consistent with Rachman (1980) and Foa and Kozak (1986). However, the experiential tradition argues that the first two stages are necessary but not sufficient for emotional processing to occur; optimal emotional processing also requires one to explore the emotional experience as information and explore, reflect on, and make sense of it (Pos et al, 2003). Pos and colleagues (2003) suggested that this includes a large degree of introspection around one's beliefs and giving voice to experienced emotion which can give rise to new emotional reactions and new meanings that subsequently may integrate into and change existing cognitive-affective structures. The experiential view goes further to delineate emotional processing as requiring active participation rather than some passive event which just happens to an individual. Thus, the experiential definition provides the necessary framework for understanding the emotional disclosure paradigm utilised in this study.

The ability to understand and regulate emotions has also been linked to emotional intelligence (Schutte et al, 2002). Definitions of emotional intelligence have been proposed in the literature. For example, Mayer & Salovey (1990; cited in Schutte et al, 2002) proposed that emotional intelligence is the ability to sense, understand, regulate, and utilise emotions in the self and others. This definition is similar to the one proposed by experiential theorists. Whether or not emotional processing and emotional intelligence

are the same construct is not clear as it appears that much of the literature on emotional processing is in the clinical field, while research on emotional intelligence has come from emotion theorists and applied psychologists. However, as with emotional processing, there is evidence to suggest that emotional intelligence is associated with emotional well-being, less depression, and greater life satisfaction (Schutte et al, 2002).

1.2 Worry and Generalised Anxiety Disorder

Worry is typically an unpleasant emotional state that is widely experienced. However, when worry becomes excessive it can lead to a disorder known as Generalised Anxiety Disorder (APA, 2000). GAD is a relatively common disorder characterised by excessive anxiety, tension and worry that is associated with a chronic course, high rates of comorbidity, and significant impairment (Roemer, 2002). Importantly, chronic worrying does not necessarily imply that an individual meets criteria for GAD, worry has also been found to be common among all anxiety disorders (Barlow, 1991) and to depression (Molina, Borkovec, Peasley & Person, 1998). The differences between chronic worriers with and without GAD will be discussed later.

1.2.1 Overview of GAD

Studies of lifetime prevalence of GAD in the general population have found estimates ranging from 1.9 to 5.1% (e.g., Brown, 1999; Wittchen, 2002). Moreover, this rate is estimated to be as high as 8% in primary care for those seeking treatment for anxiety

disorders (Wittchen, 2002). According to Brown (1999) GAD is more likely to present with a gradual onset or life-long history of symptoms. For example, studies have shown that most GAD clients are unable to report a clear age of onset or describe on onset dating back to childhood (Brown, O'Leary & Barlow, 2001). However, GAD has also been found to develop in adulthood often following a life stressor (Blazer, 1987). A consistent finding in clinical and epidemiological research of GAD is the high rates of comorbidity (Barlow, 1986; Brown et al, 2001; Wittchen, 2002). According to Wittchen (2002) GAD is most likely to be comorbid with major depression, social and specific phobia, panic disorder and post-traumatic disorder (PTSD). Studies have shown that as many as 66% of current GAD clients have an additional concurrent diagnosis, while up to 90% have a lifetime history of another psychiatric diagnosis (Wittchen et al, 1994; cited in Wittchen, 2002). Worry has also been observed as a common symptom of Axis I disorders, though the worry content seems to be quite specific i.e., worry about a future attack in panic disorder, worry about negative evaluation in social phobia (APA, 2000). The content of worry in GAD appears to cut across several domains such as family, health, finances, work/school and interpersonal relationships (Roemer, Molina & Borkovec, 1987).

1.2.2 Diagnostic Reliability

While a full review of this issue is beyond the scope of this thesis it is important to note that much debate exists about the diagnostic validity of GAD as a formal diagnosis (for a review see Brown, Barlow & Leibowitz, 1994). Brown (1999) suggests that a principal

argument for GAD to be removed from the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; APA, 2000) is due to its low diagnostic reliability within the context of other disorders and high comorbidity rates. However, GAD has been retained by the current diagnostic system and therefore the disorder and its associated symptoms require understanding and conceptualising for assessment and treatment purposes.

1.3 The Phenomenon of Worry

1.3.1 Definition of Worry

While most definitions of worry recognise that worry is a process rather than an event or state of being, others primarily view worry as concern over future events, a persistent awareness of possible future threat, or as a preoccupation with potential failures (Kelly & Miller, 1999; MacLeod, 1994). Based on research from the Penn State group, Borkovec's (Borkovec, 1994) definition concentrates less on time orientation and instead focuses on the process of worry. Borkovec's (1994) definition asserts that "worry is a chain of thoughts and images, negatively affect-laden and relatively uncontrollable; it represents an attempt to engage in mental problem-solving on an issue whose outcome is uncertain but contains the possibility of one or more negative outcomes; consequently worry relates closely to fear process" (p. 7). This view of worry also forms the basis of avoidance theory of worry, discussed later, making this an appropriate choice for the purposes of this research. It is important to note that the definition of worry provided here also overlaps with features of rumination (Fresco et al, 2002). However, research by these authors suggests that while these two cognitive processes have overlapping features,

some distinctions can be made. Primarily, results from a factor analysis of measures of worry and rumination suggest that worry involves more questioning and uncertainty whereas rumination reflected a general tendency to dwell of the negative consequences of being depressed (Fresco et al, 2002).

1.3.2 Nature of Worry

According to Roemer and Borkovec (1993) worry usually entails talking to one-self and thinking about a problem or negative experience that has occurred or may occur some time in the future. Davey (1994) postulates that normal worry is a constructive activity for problem-solving in that it may benefit the individual by providing motivation and the ability to work through different solutions for a potential problem. In this context, normal worry can be viewed as an adaptive approach to real life issues; where logical analysis, problem-solving, information seeking, and active coping are a fundamental feature (Davey, 1994). Borkovec, Roemer & Kinyon (1995) have found that many individuals have positive beliefs about worry such as worrying can help prepare them for bad events, provide motivation to get things done, or worry can make it seem less likely that bad events will happen. However, chronic worriers' problem-solving attempts rarely reach a resolution and they soon discover that control over the process of worrying is lost (Borkovec, Alcaine, & Behar, 2004; Davey, 1994). In fact, controllability and unwanted cognitive intrusions appear to be the most salient features that distinguish high worriers from non-worriers ((Borkovec, Robinson, Pruzinsky & DePree, 1983).

Based on interviews with an analogue GAD group and non-anxious controls, (Hazlett-Stevens & Craske, 2003) found that analogue GAD individuals rated worry topics of achievement, social relationships and finances as more threatening than non-anxious controls. However, while the content of worry for both analogue GAD and non-anxious participants was valenced by negative emotion, analogue GAD participants worries were also more likely to be characterised by fear of failure, inadequacy, or ineffectiveness. The findings from this study suggest that fear of negative emotion might be characteristic of worry in general whereas fear of ineffectiveness may be unique to GAD (Hazlett-Stevens & Craske, 2003). In order to investigate whether differences observed in high worriers was specific to GAD or common to all worry Ruscio (2002) compared worriers with and without GAD. He found that non-GAD high worriers worried less often and were less likely to describe their worry as causing any significant distress and impairment. Interestingly, non-GAD participants also endorsed all symptoms associated with GAD but with significantly less severity than GAD participants. Additionally, although both GAD and non-GAD worriers viewed their worrying as uncontrollable, non-GAD worriers still perceived greater overall control that their GAD counterparts. Ruscio & Borkovec (2004) suggested that these findings provide some evidence that a large proportion of high worriers do not meet the criteria for GAD and raise questions as to why some high worriers are more distressed and impaired by worry, particularly when no differences in severity are reported. A recent study by these authors found that in comparison to worry-matched controls, GAD participants were more likely to perceive worry as dangerous, out of their control but ironically believed that there would be disastrous consequences if worries and other thoughts were not kept under tight control.

Induced worry was also related to a significant increase in subsequent negative thought intrusions for both groups, an effect found in other studies (Borkovec et al, 1983; Wells & Papageorgiou, 1995; York, Borkovec, Vasey & Stern, 1987).

Worry is also highly associated with emotions such as fear and anxiety (e.g., Borkovec, 1994; Borkovec et al, 1983). For example, Borkovec and colleagues (1983) found that worry is characterised by feelings of anxiety, tension, apprehension but only a modest awareness of somatic cues. Furthermore, worriers in this study reported increased feelings of anxiety, depression and hostility than did non-worry control on a monotonous attention task. However, in comparison to other anxiety disorders, the anxiety associated with GAD is not characterised by specific stimuli, triggers or overt behavioural avoidance (Barlow et al, 1986; T. D. Borkovec, Alcaine, & Behar, 2004). Thus, with respect to treatment approaches, Borkovec and colleagues (2004) have argued that traditional exposure techniques seem to have little relevance.

The previous section provided an overview of the definition and general nature of worry. However, there are other important characteristics associated with the functions of chronic worry that need consideration and these are discussed further in relation to avoidance theory of worry and GAD.

1.4 Theoretical Explanations of Worry and GAD

1.4.1 Avoidance Theory of Worry and GAD

Studies suggest that worry is characterised by verbal-linguistic activity (Borkovec, 1994). In a comparative study of normal worry and obsessions, Wells and Morrison (1994) uncovered some qualitative differences. Participants in their study rated worry as involving more verbal than imaginal material while the converse was found for obsessions. These findings are consistent with those of (Borkovec, & Inz, 1990) who found that during relaxation non-anxious participants reported mainly positive imagery and little thought. In comparison, GAD participants reported equivalent amounts of images and thoughts, the nature of which was emotionally negative. Furthermore, research has also shown that verbal articulation of a fear stimulus elicits little cardiovascular response, whereas imagining that same feared scene evokes considerable heart rate response (Vrana, Cuthbert & Lang, 1986). For example, Borkovec and Hu (1990) found that speech-anxious participants instructed to worry prior to phobic image presentation showed no cardiovascular response at all, while those instructed to think neutral thoughts or relax demonstrated significant heart rate arousal to the images. As Tucker and Newman (cited in Borkovec, 1998) argue people impetuously use verbalisation as a strategy for abstraction, disengagement, and emotion control that can also reduce sympathetic arousal to aversive matters.

Based on the evidence outlined in this section and previously, Borkovec and colleagues (2004) concluded that worry permits the avoidance of emotional imagery and its

associated somatic symptoms. The conclusion that avoidance of affect underlies the primary reason for worry was considered by Borkovec & Roemer (1995) in a study to uncover the function worry served clients with GAD. They constructed and administered a measure using 6 reasons for worry and found that the GAD group were discriminated from control groups by high ratings of "distraction from more emotional topics" as a reason for their worry. These authors also concluded that the chronic worry observed in GAD is the critical maintenance variable for this disorder. They argue that chronic worry allows individuals to process emotional topics at an abstract, conceptual level, and consequently, avoid aversive images, autonomic arousal, and intense negative emotions in the short term. The immediate reduction of anxiety and intense negative emotion achieved by worrying is negatively reinforced. However, negative reinforcement eventually leads to a loss of control of worry, and inhibition of emotional processing while maintaining the anxiety. Borkovec (2002) argues that inhibition of emotional processing due to chronic worry prevents individuals from reducing the emotional distress and putting it aside. Over the long-term, the individual is repeatedly confronted with troubling emotional material, which produces more intense experiences of anxiety that results in constant engagement of worry to dull this experience (Mennin, 2002).

1.4.2 Emotion Regulation Framework in Relation to Worry

Mennin (2004) argues that even though avoidance theory of worry in GAD is quite comprehensive it does not elucidate why particularly individuals with GAD find negative emotions so aversive they need to be avoided. Mennin (2004) suggests that adopting an

emotion regulation framework can further understanding as to why negative emotion is circumvented as suggested by avoidance theory of worry in GAD. From this perspective, Mennin (2002) postulates that individuals with GAD may experience emotions more intensely and aversively, and may also struggle with understanding and calming emotions than those without this diagnosis. In this sense, emotion may be viewed as overwhelming and dangerous to the extent that it impacts on the individual's sense of well-being and ability to function normally (Mennin, 2002). Thus, Mennin (2002) states worry can be viewed as a cognitive control strategy employed to compensate for the emotional regulation difficulties experienced by individuals who worrying excessively. However, the compensatory nature of worry to regulate emotion experience only serves to avoid rather than process and utilise emotional information. Over the long-term, avoidance may lead to an increase in emotional intrusions which in turn may lead to an increase in experiencing emotions as aversive and the intensification of worry as a strategy to control these experiences (Mennin, 2002).

1.4.3 Metacognitive Theory of Worry

The metacognitive model of GAD has not received as much empirical attention as avoidance theory of worry and GAD. However, several aspects of the cognitive conceptualisation of GAD do warrant highlighting. First, the model argues that there are two types of worry, type 1 and type 2. Type 1 is worry about external events and noncognitive internal events, while type 2 worry is worry about worrying (Wells, 1999). From this perspective, GAD is thought to develop because an individual develops beliefs

that worry serves as a protective or coping function in addition to negative beliefs that worry is uncontrollable with dangerous consequences. Thus, in a situation perceived as threatening, positive beliefs about worry are activated and type 1 worry begins (Wells, 1999). However, Wells (1999) suggests that once the worry process begins it becomes harder to stop for someone with GAD and as a consequence negative appraisals get selected and type 2 worry is activated. Thus, worry about worry intensifies intrusive thoughts and negative beliefs are reinforced. In contrast to avoidance theory of worry and GAD this model does not address the affective component of worry other than to say that type 2 worry increases the experience of anxious apprehension which is interpreted as a sign of loss of control. According to Wells (1999) the factors involved in type 2 worry contribute to the maintenance of excessive worry and GAD.

Secondly, this model goes further than avoidance theory of worry and GAD to hypothesise about the behavioural responses. In the context of this model, behavioural strategies such as avoidance of situations that trigger worry, reassurance seeking, and checking are thought to prevent the activation of worry but along with type 2 worry only serve to reinforce worrying as a coping mechanism (Wells, 1999). Studies have found some support for type 2 worry (e.g., Davis & Valentiner, 2000) in that those who qualify for the diagnosis of GAD demonstrate higher levels of type 2 worry and both positive and negative beliefs in comparison to non-anxious and nonworried-anxious controls. However, the investigation of overt avoidance behaviours associated with excessive worry and GAD has not received much empirical attention.

1.5 The Construct of Avoidance

Each of the theories described above have related worrying to cognitive avoidance. For example, Borkovec & Lyonfields (1993) argues that the most important strategic responses that maintains vigilance to danger among anxious individuals are avoidant in nature and take place primarily in their cognitive processes. Furthermore, Borkovec & Lyonfields (1993) views cognitive avoidance as a response to the detection of threat and involves the appraisal of a lack of resources to cope with the threat, and functions to remove the individual from the presence of internal threatening stimuli, and the aversive emotional state elicited by those stimuli. While Borkovec and Lyonfields (1993) view on cognitive avoidance enables understanding of his theory it is pertinent to note that in the extant literature on cognitive avoidance has been inconsistently defined and poorly conceptualised and as a consequence there are few avoidance scales available (Hayes, 1996; Lyne & Roger, 2000; Ottenbreit & Dobson, 2004; Roger, 1995a, 1993).

1.6 Etiology of GAD and Chronic Worry

As previously mentioned people with GAD often present with a life-long history of anxiety without a clear age of onset (Brown, O'Leary & Barlow, 2001). Moreover, Brown and colleagues (2001) argue that relative to genetic/biological influences psychosocial factors associated with the onset of GAD have received little empirical attention. Additionally, the majority of research during the past decade has focused on the pervasive nature of worry without much consideration paid to historical contributors to

the etiology and maintenance of chronic worry and GAD (Roemer, Molina, Litz, & Borkovec, 1997). As Roemer and colleagues (1997) suggest just because the worry observed in GAD seems to be pervasive, persistent and future-oriented does not preclude the possibility that critical past events play a role in the etiology and/or maintenance of this disorder.

1.6.1 GAD, Worry and Significant Life Events

Only three published studies have been found in the literature examining the relationship between trauma and GAD. For example, (Roemer et al, 1997) found in analogue and clinical samples of GAD more exposure to a potentially traumatising event in comparison to non-anxious controls. Also, outcome data from another study suggested a higher prevalence of stressful life events in individuals diagnosed with GAD compared to clients diagnosed with panic disorder (Torgersen, 1986). Similar results by Blazer, Hughes & George (1987) also found that the development of GAD was more prevalent among participants who experienced an unexpected, major negative life stressor in the preceding year. However, Torgensen (1986) only examined a specific example of a stressful life event (death of a parent), whereas Blazer and colleagues (1987) definition of a negative life event was very broad and included change of residence.

Despite the methodological flaws in previous research, the data provide some tentative evidence which suggests that traumatic events may have a role in the development and

maintenance of GAD. Thus, these studies warrant replication to validate these findings and to further demarcate what that role might be.

1.7 Treatment of GAD

Meta-analysis of treatments for GAD have found that cognitive behavioural therapies (CBT) are able to significantly reduce the symptoms of this disorder in 50-60% of cases (for a review see Weston & Morrison, 2001). However, Weston and Morrison (2001) also found that while many experience improvement, few become asymptomatic. Questions still remain about the long term efficacy of current treatment approaches and relapse rates. Successful treatments have typically included techniques such as cognitive restructuring, systematic desensitisation, relaxation training, anxiety management training, or some combination of these (Brown, O'Leary & Barlow, 2001). These authors further state that despite findings, there remains a lack of evidence for differential efficacy in most treatment research as both the active and nondirective treatments have produced significant and stable gains compared to controls. For example, Gould and colleagues (Gould, Otto, Pollock & Yap, 1997) meta-analysis of CBT and pharmacotherapy found no significant differences between the two (both effectual with effect sizes of .70 and .61 respectively). This suggests that current therapeutic practices do not go far enough to fully address the variables maintaining GAD and further research is needed to uncover effective mechanisms of action.

In addition to the employment of various traditional CBT methods to treat GAD, several authors have also proposed contemporary techniques for therapists to incorporate into

their current treatment approach for GAD. For example, Borkovec and colleagues (2004; see also Borkovec, 2003) utilises experiential techniques that encourage accessing suppressed emotions to facilitate their identification and processing. Mennin (2004) also combines traditional and contemporary approaches to his Emotion Regulation Therapy (ERT). Clients being treated for GAD with ERT learn to recognise, process, and regulate their emotional experiences in order to reduce their worry behaviour. These contemporary treatment approaches to GAD offer some innovative ways to treat this disorder. However, the reduction in symptoms observed with these treatment approaches have yet to be empirically validated as the mechanism of change.

1.8 Emotional Disclosure Paradigm

1.8.1 Theoretical Basis of Emotional Disclosure

The emotional disclosure paradigm is based on the inhibition-confrontation theory proposed by James W. Pennebaker (1989). The inhibition-confrontation theory posits that some individuals who have experienced trauma consciously restrain thoughts, feelings, and behaviours associated with that event. The active inhibition by the individual requires psychological work and in the long run is seen as a cumulative stressor on the body increasing the likelihood of psychological problems and stress-related illness. Additionally, Pennebaker (1989) argues that active inhibition prevents the individual from translating the event into language. To translate traumatic experiences into language aids the assimilation of those events in order to find emotional meaning and bring about a sense of closure. Pennebaker (1989) believes that significant events that are inhibited

surface as ruminations, dreams, and other associated cognitive symptoms. While Pennebaker (1989) does not state what these other cognitive symptoms are, based on the research discussed thus far, it seems that worry could be one such symptom.

1.8.2 Literature Review of Studies Utilising the Emotional Disclosure Paradigm

All of Pennebaker's research to test his theory that confronting traumatic experiences results in reducing psychological problems and stress-related illness has utilised a writing paradigm focusing on emotional disclosure. Pennebaker's emotional disclosure paradigm generally involves two groups, an experimental and control, writing about a specific topic. The experimental group is usually directed to write about a stressful life event or trauma while exploring their emotions and thoughts whereas the control group writes about trivial unemotional matters. More often than not, the writing takes place on consecutive days in a laboratory setting.

The results of Pennebaker's writing studies with new college students have found that creating written narrative for traumatic events has improved grade point average and reduced visits to the health centre for illness (Pennebaker, 1996). More specifically, Pennebaker has found that when the narrative is focused on exploring the emotion felt at the time of the trauma and the implication of the event has produced the most substantial improvements in well-being in comparison to superficial unemotional writing.

Other researchers have also utilised the emotional disclosure paradigm with a wide range of populations and outcome measures. For example, Hunt (1998) addressed whether

emotional processing using Pennebaker's writing paradigm reduced dysphoria following a low mood induction. After receiving false feedback about the results of an intelligence test, participants were assigned to one of three essay conditions, emotional processing, disputation or distraction. The emotional processors were instructed to focus on their feelings regarding the feedback, while the disputation group focused on presenting evidence they were more intelligent than the results suggested and finally, the distraction group focused on unemotional topics not related to the feedback. Hunt found that participants in the emotional processing group reported a bigger increase in mood in comparison to either the disputation or distraction group. A content analysis of the essays provided strong support that a simple habituation model accounted for the improvement in mood reported by the emotional processing group.

Schoutrop (2002) and colleagues also used the written disclosure paradigm with participants who reported previous trauma that was still causing significant distress. The authors used post-traumatic stress disorder measures as inclusion criteria in order to ensure that symptoms experienced by their participants were in line with clinical criteria. It was found that participants in the writing group reported significantly less re-experiencing of the trauma in thought and dreams and less avoidant behaviour in comparison to pre-test scores and wait-list controls.

The findings from the studies highlighted above have also been replicated with anxious children (Muris, Meesters & Gobel, 2002), college students (Lumley & Provenzano, 2003), assessing illness behaviour among sex offenders in a prison population (Richards,

Beal, Seagal & Pennebaker, 2000), and utilising cyberspace as the medium for expressive writing (Sheese, Brown & Graziano, 2004). Studies have also found that in addition to reducing psychological distress, writing about traumatic events increased perceptions of mastery, personal growth and self-acceptance (Hemenover, 2003). While there is much empirical support for the emotional disclosure paradigm, not all studies have been able to replicate the findings outlined above. Greenberg & Stone (1992) failed to find a between group effect on health centre visits and physical symptom measures, although participants who disclosed more severe trauma did report less physical symptoms at follow-up. These results are similar to that of Kloss & Lisman (2002) who also failed to find any differences between groups on physical health measures or measures of mood and anxiety. Stroebe et al, (2002) assessed what effect emotional disclosure had on grief and also failed to find a reduction of distress or health centre visits.

Across all of the studies discussed in relation to the emotional disclosure paradigm several methodological issues became apparent. First, few studies discussed what options were available to participants disclosing trauma regarding confidentiality of their writing. It makes intuitive sense that more disclosure might occur if the writing content was confidential from the experimenter, even if consent was given to allow access knowing someone else would read the content suggests that certain elements of a trauma or stressful event may be withheld. This is consistent with the findings from Pennebaker, Hughs & O'Heeron (987) who found that when participants were instructed to talk about a stressful event in front of a confessor the amount of disclosure was less than that observed for participants who talked into a tape recorder. Secondly, at least in one study

writing instructions were the same for each writing day and were not as directive as Pennebaker's. Pennebaker is explicit in his instructions to explore emotions and directs participants to bring their story to a conclusion on the final day. This is intended to assist people to make meaning out of their trauma, which Pennebaker believes aids the process of putting this type of event to rest. Despite the null findings of some studies replicating Pennebaker's emotional disclosure paradigm, this appears to be an appropriate avenue for promoting emotional processing experimentally as it is an overt process than can be manipulated to measure change.

1.9 Emotional Disclosure Paradigm, Avoidance and Worry

1.9.1 Rationale for the Current Research

From the literature reviewed thus far, there appears to be a relationship between chronic worry and avoidance of emotional processing. While previous research has shown that worry distracts from emotional topics, there are limited published data available on research with chronic worriers and measures of emotional processing. At this point, it is still only speculative that worrying inhibits the processing of emotional matters. However, the literature suggests that if emotional processing is sufficiently induced in high worriers then there should be a subsequent reduction in the utilisation of worry as a strategy to avoid negative emotion and its associated somatic symptoms. The treatment studies with GAD have also shown that while these are effective in reducing the symptoms of worry and anxiety, the mechanism of action is still unknown at this point. Furthermore, new contemporary techniques have been put forth as ways to reduce worry

based on theoretical assumptions but these have yet to be validated (e.g., Emotion Regulation Therapy; Mennin, 2004).

Borkovec's avoidance theory of worry and GAD explains how the chronic worry observed in GAD is maintained yet little is known about the etiology of this disorder. Borkovec (Borkovec, 1994) has argued that individuals with GAD have developed a psychological vulnerability due to exposure to psychosocial trauma (e.g., death of a parent, exposure to physical/sexual abuse) and insecure attachment to primary caregivers. This suggests that despite the content of chronic worry being concerned with primarily future events, worry might have its origins in unresolved experiences from the past (Borkovec, Alcaine, & Behar, 2004). Moreover, Borkovec and colleagues (1995) have argued that if this is the case then the disclosure literature suggests that accessing, experiencing and verbally expressing the emotion from those past events to construct a personally meaningful narrative may provide an effective strategy for reducing worry and the anxiety that generates it. Further evidence of the link between unresolved experiences from the past and chronic worry has been posited by Roemer (1997) who argues that excessive worrying is a common phenomena found in post trauma populations. While Roemer (1997) asserts that it is unlikely that there is a one to one relationship between excessive worry and trauma, the overlap between these observations warrant further investigation.

1.9.2 The Purpose and Hypotheses of the Present Study

The primary aim of this study was to address the above concerns regarding the inhibition of emotional processing in chronic worry and its relationship to GAD by utilising Pennebaker's paradigm as a measure of emotional processing. With respect to the paradigm, getting individuals to process past trauma or stressful life events was beyond the scope of this research design. Additionally, the assertion that past trauma may be associated with either the onset or maintenance of GAD is tentative at best. Further evidence is required before this type of research is undertaken. Thus, emotionally processing current distressing worries was the focus of the writing and additional measures were employed to assess trauma events and post-traumatic symptoms. Firstly, it was hypothesised that high worriers in the emotional processing group would report a greater reduction of worry and state anxiety in comparison to controls. Secondly, it was hypothesised that there would be a relationship between trauma variables and high worry.

Knowledge regarding coping strategies employed by those who engage in chronic worry also needs to be delineated further as these may also contribute to the development and maintenance of worry as suggested by avoidance theory of GAD (Borkovec, Alcaine & Behar, (2004). There is much in the literature on the nature of worry but little is known about who these high worriers are. The investigation of these psychosocial factors served a dual purpose: a) to further the conceptualisation of inhibition of emotional processing in high worry and b) to demarcate specific behaviours characteristic of high worriers. It was

hypothesised that worriers would also score high on maladaptive coping strategies, especially cognitive avoidance.

Chapter 2

2. Method

2.1 Participants

Twenty-six participants were recruited from the University of Canterbury, Christchurch, New Zealand via advertising on campus and from psychology laboratory classes. All participants were assessed as high worriers from their scores on the Penn State Worry Questionnaire (see appendix F) and randomly assigned to either a control or experimental group. A total of 7 males and 19 females participated with a mean age of 26.54 (SD=7.67, range 18 to 45 years). The ethnicity of participants included 1x Maori, 1x Chinese, 1x other and 23x New Zealand Europeans. Participants were not paid for their involvement; however, all were entered into a draw to win one of 4 gift certificates to the value of $50.00.

2.2 Consent

Participants gave consent at two separate phases in this study, prior to the screening phase (see Appendix B) and prior to participating in the writing phase (see Appendix D). The consent form for the writing phase also gave the participants the opportunity to deny the researcher access to their diaries. This was important as it was thought that if participants could keep their diaries completely confidential then this would help

encourage emotional processing. Only three participants (two experimental and one control) did not consent to the researcher having access to their diary.

2.3 Measures

1. *Penn State Worry Questionnaire (PSWQ:* Meyer, et al., 1990) – The PSWQ (see Appendix F) measures the tendency, intensity, and uncontrollability of worry and consists 16 statements that characterise a general worry factor (Molina & Borkovec, 1994). Respondents are required to rate how typical the 16 statements are representative of him or her on a 5-point Likert response scale. Possible scores range from 16 to 80, with higher scores reflecting higher levels of worry. Research has shown that the PSWQ has been found to have high internal consistency in college samples with coefficient alphas ranging from .91to.95 (e.g., Meyer et al., 1992). Brown and colleagues (1992) found similar coefficients in a large clinical population of mixed anxiety disorders and GAD. Four studies conducted by Meyer et al., (1992) found the test-retest stability of the PSWQ to be fairly stable across time with coefficients ranging from .74 to .93. Consistent with other research van Rijsoort and colleagues (1999) examined construct validity and found that the PSWQ was highly correlated with the State-Trait Anxiety Inventory (Speilberger, 1983) trait scale (r= .75), the Beck Depression Inventory (r= .62), and the Worry Domains Questionnaire-Revised (Tallis, Davey, & Bond, 1994) (r= .61).

2. *State/Trait Anxiety Inventory* (*STAI*: Speilberger, 1983) - The STAI has two scales one for state- anxiety (form y-1; see Appendix G) and one for trait-anxiety (form y-2; see Appendix G). The state-anxiety scale requires the respondent to rate whether each of the 20 statements is indicative of how the individual feels *at this moment* by blackening one circle corresponding to 1 of 4 responses (not at all; somewhat; moderately so; and very much so). The trait-anxiety scale requires the respondent to rate 20 statements reflecting how they feel *generally* by blackening the appropriate circle corresponding to 1 of 4 responses (almost never; sometime; often; and almost always). Each STAI item is given a weighted score of 1 to 4 with the anxiety absent statements reversed scored. Weighted scores are added for each of the 20 statements that make up the state-anxiety and trait-anxiety scales, scores can vary from a minimum of 20 to a maximum of 80. The STAI has been found to have moderate to high reliability and validity. However, the state-anxiety reliability coefficients have been found to be low, ranging from .16 to .62. These low coefficients were expected as state anxiety is context dependent and reflects the influence of situational factors.

3. *Emotional Control Questionnaire Revised* (*ECQ*: Roger & Najarian, 1989) – The ECQ (see Appendix H) comprises two scales, emotional inhibition and rumination and was designed to measure individual reactions to emotional arousal (Roger & Schapals, 1996). Emotional inhibition measures the degree to which emotion is restrained and rumination measures the tendency to dwell on emotionally upsetting events (Roger & Schapals, 1996). The ECQ requires the

respondent to rate 39 statements as an indication of how they feel about each one by circling either true or false. Each ECQ item corresponding to each scale is given 1 point and higher total scores indicate the degree to which people inhibit their emotions or ruminate. Both emotional inhibition and rumination scales have been extensively validated, particularly rumination. For example, Roger & Najarian (1989) found that ECQ correlates well overall with a variety of personality scales and the rumination/rehearsal scale has been shown to be related to prolonged physiological recovery to stress. The ECQ has also been found to have good internal consistency with alphas of 0.86 for rumination/rehearsal and 0.77 for emotional inhibition, .80 and .79 respectively for test retest reliability across a 7 week period (Roger & Schapals, 1996). For the purposes of this study these scales were used to explore the relationship between emotion and worry.

4. *Coping Styles Questionnaire Revised* (*CSQ*: Roger, Jarvis & Najarian, 1993) –The CSQ (see Appendix I) is a 41 item questionnaire designed to measure coping strategies (Roger, Jarvis & Najarian, 1993). Respondents are asked to rate each one according to how they react in certain situations by circling either *always, often, sometimes, or never.* Each item is then scored according to each factor; detached emotional (feeling separate from problem and the emotion associated with it), rational (task oriented/problem solving), and avoidance. This measure has also been found to have good reliability and validity. Roger and colleagues (1993) found internal consistency was high overall with alphas of .86 (rational), .74 (detached emotional), and .69 (avoidance). Test-retest analyses across 3

months found similar coefficients for each of these scales .81, .79, and .70 respectively. The CSQ has also been found to correlate well with the ECQ (Roger & Najarian, 1989). This measure was used in the current study to assess coping styles among high worriers.

5. *Trauma Events Questionnaire* (*TEQ*: Vrana & Lauterbach, 1994) – The TEQ (Appendix J) assesses the frequency, type, and severity of traumatic experiences, with 11 specific types of trauma selected from DSM-III-R and the relevant literature. For each event endorsed, respondents rate the number of times the event occurred and their age at the time of the event. Respondents also rate on a 7-point Likert scale from 1 (not at all) to 7 (extremely) whether they were injured, their life was threatened, how traumatic the event was for the respondent at the time, and how traumatic it is for them at present. Those who do not endorse any items are asked to describe the worst, stressful experience that they have experienced. Two other categories are also included where respondents can record additional events not included on the TEQ. Several indices can be obtained, including number of traumatic events and severity of experiences. For the purposes of this study, only number of events was analysed due to the fact that the TEQ makes the assumption that sexual abuse is a continuous event. Furthermore, due to budgetary constraints the TEQ was chosen despite there being no published data on reliability and validity.

6. *PTSD Checklist (PCL-C*: Weathers et al., 1993; cited in Orsillo, 2001)

   The PCL-C (see Appendix K) is a 17-item questionnaire that assesses the presence and severity of specific symptoms of Posttraumatic Stress Disorder (PTSD). The respondent is required to rate on a 5-point Likert scale (from 0 to 5) how much the problem described in each statement has bothered them over the past month. A total score is an indicator of symptom severity. The PCL-C has been found to have excellent reliability and validity with sample scores and norms available for several different populations (Orsillo, 2001). The PCL-C has been found to have excellent internal consistency in combat veterans (Weathers, 1993, cited in Orsillo, 2001) and motor vehicle accident victims and sexual assault survivors (Blanchard et al, 1996) with *r*'s ranging from .77 to .93. Blanchard and colleagues (1996) also examined diagnostic efficiency and found that a cut-off score of 50 yielded a sensitivity of .78 and specificity of .86. These authors also found that a cut-off of 44 enhanced sensitivity to .94 and specificity to .86 with an overall diagnostic efficiency of 96%.

2.4 Procedure

As previously stated, participants were recruited using advertising around notice boards in the psychology department and at laboratory classes. The advertising asked for people who identified as being easily stressed, anxious or nervous to participate in a study on the psychology of writing. It was thought that people who identified with these tendencies

would also likely to be high worriers. This turned out to be the case, from a total of 30 people volunteering only 4 not meeting criteria.

Prior to taking part in this research all participants read an information sheet (see Appendix A) explaining that participants needed to fill in a total of 8 questionnaires to assess whether they were eligible to continue in the study. As previously stated, eligibility was based on whether individuals had high worry scores on the PSWQ, the criterion for high worry is discussed later. Once the information sheet was read, a consent was obtained (see Appendix B) before participants completed a demographic form (see Appendix E), the PSWQ (see Appendix F), the STAI (Y-1 and Y-2 see Appendix G), ECQ (see Appendix H), CSQ (see Appendix I), TEQ (see Appendix J), and PCL-C (see Appendix K). The demographic form collected data on age, gender and other factors such as previous self-harm and diagnosed psychological disorders that may have put participants at an increased risk of distress during the writing phase. Whilst this information did not result in any participants being excluded it allowed the researcher to be more vigilant with participants who did disclose information that increased their risk of undue distress.

The PSWQ and state anxiety form of the STAI provided baseline scores to measure change across the writing phase. The ECQ, CSQ, TEQ, and PCL-C were utilised to ascertain other psychological and emotional variables associated with high worry and to analyse what their moderating effects may be on the outcome on the writing phase.

Participants with a score of 45 or higher on the PSWQ were defined as chronic worriers similar to those with GAD and eligible for the study. This cut-off score was generated after examination of the literature which suggests that scores above 45 represent those who are high worriers. For example, Gillis and colleagues (1995) generated normative values for the general population using percentile scores and their data suggest that a mean score of 44 on the PSWQ is above the 50^{th} percentile. This is consistent with research by Behar et al., (2003) who suggest that a cut-off score of 45 achieved a balance between sensitivity (0.99) and specificity (0.98) especially when screening for GAD in an advertised for sample needing to meet certain criteria for eligibility.

Participants with a score of 45 or more on the PSWQ were contacted to inform them of their eligibility to participate in the writing phase. Participants were then randomly assigned to either a control or experimental group. On the first writing day before participants received instructions participants were required to read an information sheet (see Appendix C) and give consent. The information sheet for the writing phase explained what was going to occur during the writing phase and the possible distress they may feel during this time. It was also explained that participants could withdraw their consent at any stage and what they could do if they felt more distressed than what might be expected. This information was also provided verbally by the experimenter before consent was obtained. The consent form (see Appendix D) allowed participants to be involved in the writing sessions but not for the experimenter to read their diaries. It was hoped that giving participants the ability to keep their thoughts completely confidential would encourage emotional processing.

The writing phase took place over 3 consecutive days and involved 20 minutes of writing. Each participant came to a private room to be seated and was given their writing instructions for that particular day. Once participants were seated and given their writing instructions and diaries for that particular day they were left alone to write continuously for 20 minutes.

The writing instructions for the experimental group (see Appendix L) on day one asked participants to write about their most current, distressing worry or worries and to examine their deepest emotions and thoughts surrounding their worry or worries. The writing instructions on day two asked the experimental group to continue from where they left off the day before and again encouraged to delve into their deepest emotions. On day three the experimental group were instructed to continue from the previous day and reminded that it was the last writing day so they may wish to wrap everything up i.e., explore the relationship between their current worry and current life and future. However, participants still had discretion to go in any direction they felt comfortable with.

In contrast, the writing instructions for the control group (see Appendix L) for day one asked participants to write about the day prior from the moment they got up until they went to bed. On day two the control group was instructed to write about what they had done since they got up and on day three what they were planning to do over the next week. The writing instructions also required controls to be as objective as possible across the 3 writing sessions without offering opinions or discussing their emotions.

All participants spent time with the experimenter before and after each writing session discussing how they felt during the writing session and in-between sessions. This was done to ensure that participants felt no undue distress as a result of the writing requirements and to discuss options should this occur after they left the experimental laboratory. Previous research by Pennebaker and colleagues (Pennebaker & Frances, 1996; Pennebaker & Seagal, 1999) using the emotional disclosure paradigm has found that participants feel no worse than having attended a sad movie and self-report by participants in this study seem to support this finding. The debriefing with the experimenter was conducted with all participants in this study irrespective of which group they had been assigned to. During this time no participant reported any significant distress, although several participants in the experimental group reported a drop in mood following the first writing session. These participants also stated that this was minor and transient.

The participants in the experimental and control group completed the PSWQ and the STAI-state anxiety questionnaire at three stages: before the first writing session (baseline), immediately after the last writing session (post-test) and 4 weeks after the last writing session (follow-up). Additionally, at the follow-up session participants were debriefed as to the nature of the study, interviewed to ascertain if any significant distress was being experienced and given an information sheet to take away (see Appendix M). Again, no significant residual distress was reported.

Chapter 3

3. Results

3.1 Analysis of the Emotional Disclosure Paradigm

3.1.1 Measure of Worry at Baseline

It was observed from the distributions (see figure 1) of baseline worry scores that there was variability above the cut-off of 45 on the Penn State Worry Questionnaire (PSWQ). Thus, it was important to ensure prior to the analysis of the writing phase that there were no significant differences between experimental and control worry scores at baseline. An independent t-test found no statistically significant differences between the groups mean baseline PSWQ scores t (24) = 1.54, *ns*.

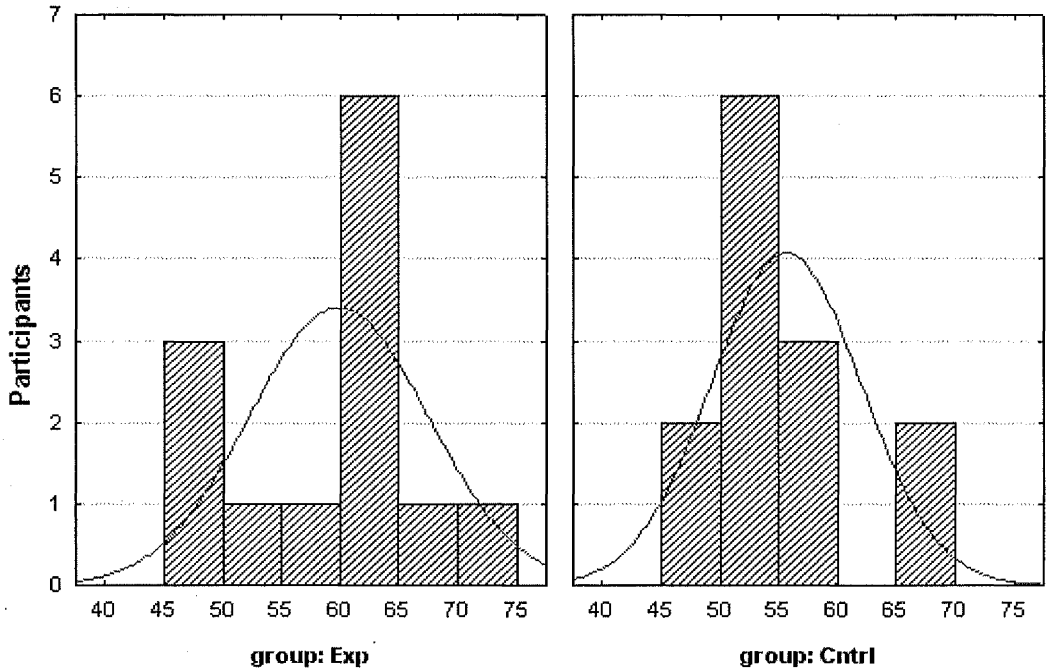

Figure 1: Distribution of PSWQ scores for experimental and control groups at baseline

3.1.2 Analysis of the Writing Phase

Table 1 below shows the means and standard deviations for experimental and control groups baseline, post-test and follow-up scores (worry and state anxiety) across the writing phase. During the writing phase the experimental and control groups showed a decrease in mean worry scores which was maintained at follow-up. The state anxiety scores seemed to remain relatively stable for the experimental group but showed a slight decrease for the control group.

Table 1. Worry (PSWQ) and state anxiety means (M) and standard deviations (SD) for the experimental versus control group across the writing phase

	Experimental Group (n = 13)						**Control Group (n = 13)**					
	Baseline		**Post-test**		**Followup**		**Baseline**		**Post-test**		**Followup**	
	M	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**
PSWQ	59.77	7.62	58.92	9.43	55.54	8.37	55.54	6.36	54.08	9.45	51.31	8.35
STAI	46.46	10.09	46.77	10.48	47.08	8.28	45.92	14.46	45.0	14.01	44.38	11.33

3.1.3 Effect of Writing on Worry Scores

In data sets where baseline and repeated measures are obtained for experimental groups, difference scores using the baseline as criterion are often used as the unit of analysis. This procedure controls for any differences between groups at baseline. However, since the manipulation check had shown that the baselines for the two groups in this study were not statistically different, the data were entered into a 2 (groups) x 3 (administration times) repeated measures ANOVA to assess the effects of writing and group on worry scores across 3 consecutive days. The two groups were defined as the between-subjects

factor and the administration times (baseline, post-test and follow-up) as the within factor. The results showed a main effect of administration time F (2, 48) = 5.98, $p < .01$ (see Figure 2).

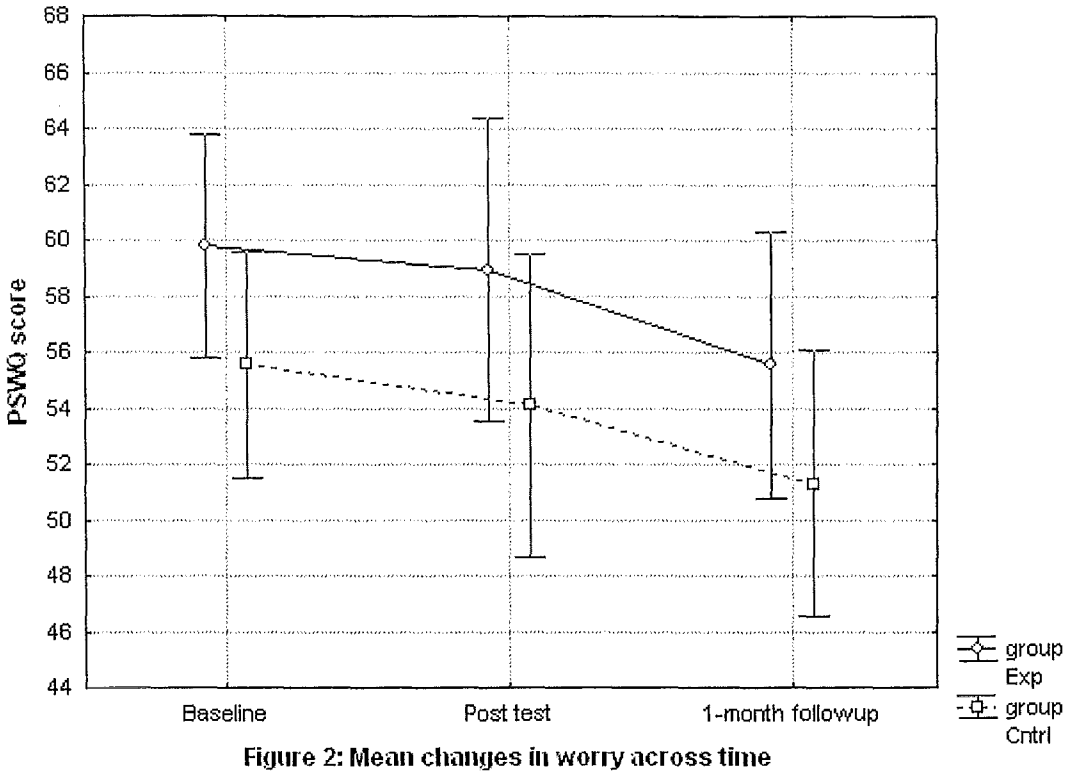

Figure 2: Mean changes in worry across time

Comparison of the mean scores using Tukey's post-hoc test showed that there was a significant difference in PSWQ scores between time 1 and 3, and time 2 and 3. There was no significant difference in PSWQ scores between time 1 and 2. Neither the main effect for Groups nor the Group x Time interaction was significant (see Table 2 for ANOVA summary). In sum, these results showed that there was a significant reduction in worry scores irrespective of which group high worriers were assigned to.

Table 2. Summary of the ANOVA analysis for mean worry scores

	df	SS	MS	*F*
Between	24	4001.1		
Group	1	383.7	383.7	2.302
Within	48	998.3		
Time	2	248.7	124.4	5.979**
Time x Group	2	1.6	0.8	0.039
Total	25	4999.4		

Note **=$p<0.01$

3.1.4 Measure of State Anxiety at Baseline

Again, given the potential for baseline state anxiety scores to vary it was important to ensure prior to the analysis of the writing phase that there were no significant differences between them. An independent t-test found no statistically significant differences between the groups mean baseline state anxiety scores t (24) = 0.11, *ns*. The distributions of anxiety scores for both groups are presented in figure 3 below.

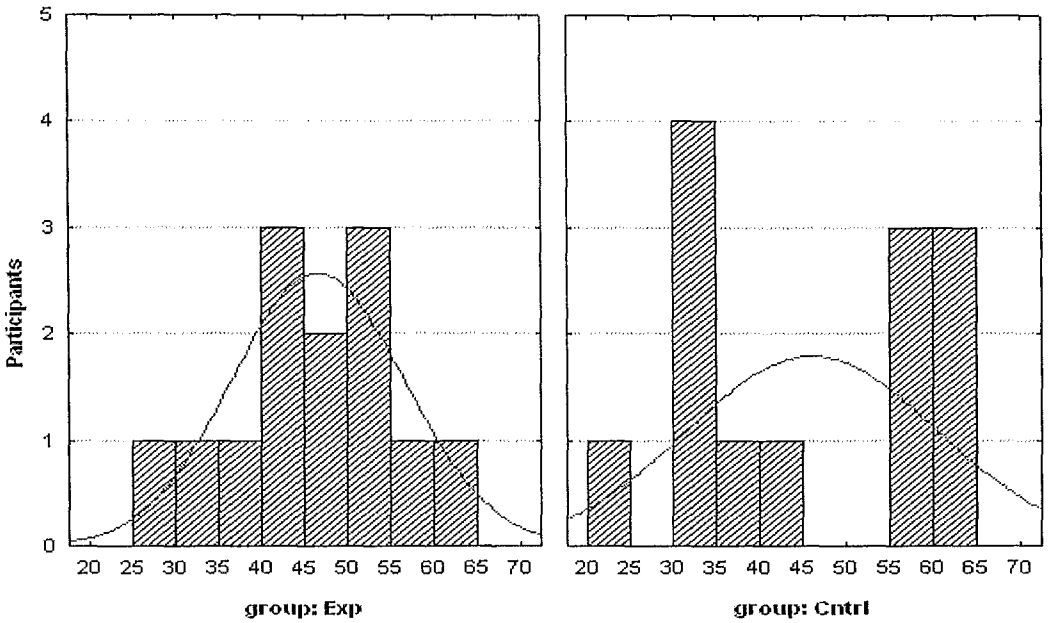

Figure 3: Distribution of STAI state anxiety scores at baseline

3.1.5 Effect of Writing on State Anxiety

A 2 (groups) x 3 (administration times) repeated measures ANOVA was conducted to measure the effects of writing and group on state anxiety scores across 3 consecutive days and at follow-up. The ANOVA found there was no significant main effect of time, group or an interaction F (2, 48) = 0.06, *ns* (see Table 3 for ANOVA summary).

Table 3. Summary of the ANOVA analysis for mean state anxiety scores

	df	SS	MS	*F*
Between	24	4473.2		
Group	1	54.2	54.2	0.2906
Within	48	5295.3		
Time	2	2.9	1.4	0.0130
Time x Group	2	15.2	7.6	0.0688
Total	25	9768.5		

When the ANOVA results were graphically displayed it could be observed that the experimental group showed a slight increase in state anxiety and the control group a slight decrease across the three writing days and at follow-up (see figure 4 below).

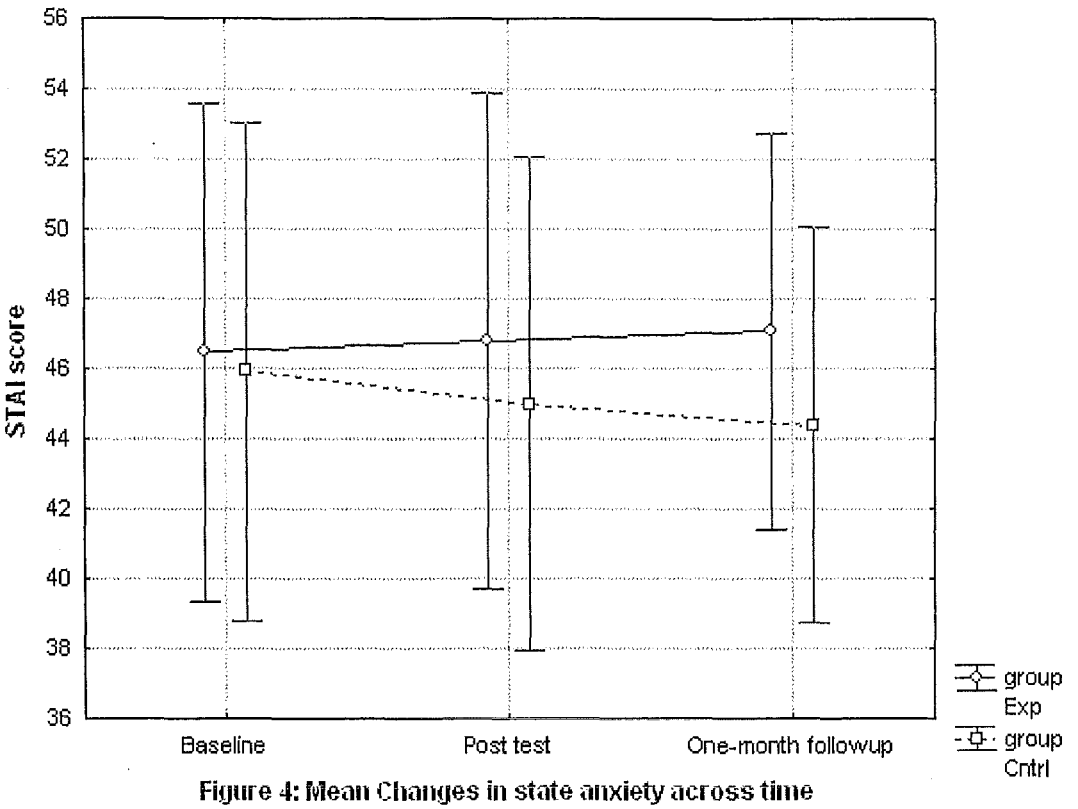

Figure 4: Mean Changes in state anxiety across time

3.2 Diary Analysis

Based on the outcome of the repeated measures ANOVA for worry scores across the writing phase, post-hoc analyses were conducted on participants' diaries to ascertain whether any emotional processing occurred which may account for the reduction observed. As previously mentioned, consent for access to the diaries was acquired at the

beginning of the study; only one control and two experimental participants retained their dairy.

The diary data offered an extremely rich source of information that would have required a detailed analysis using formal Discourse Analytic methods. However, this approach was beyond the scope of this thesis, and instead a more quantitative approach was adopted based on frequency counts of emotion-related phrases. Quantitative analyses of conversational processes commonly use criterion indices expressed as a proportion of total speech, either of the subject or interlocutor. For example, interruption frequencies are analysed as a proportion of the total time spoken by the conversational partner, since interruptions can only occur during this speech (see for example Roger & Schumacher, 1983).

The emotion-related utterances in this study depend upon some index of total writing time, but the difficulty lies in deciding what criterion to use, such as total words written or total number of phrases used, each of which incurs methodological problems. While no word limit was imposed there was a time limit placed on accounts, it can be assumed that the participants wrote as much as was appropriate. Consequently the total number of emotion-related phrases used by each participant was used as the unit of analysis.

It was also deemed necessary to consider the context of participants writing; therefore diaries were read for phrases/sentences that appeared to be a stream of thought associated with *current* worry and emotions. Phrases/sentences were coded only when the content

was explicit regarding what the participant was feeling at that time or worried about, for example, "I feel guilty because of what I have done". Any phrases or sentences deemed worrisome or emotional were counted for each writing day and tallied for both groups. Furthermore, if a worry contained different content than one coded previously then it was counted as a separate worry. Additionally, emotion-related phrases were separated in either negative or positive for coding purposes with negative emotion words including anxiety related phrases. Across both groups there was one control diary that contained no phrases or sentences that fit the criteria above.

An emotion phrase consisted of sentences such as "I left here today and thought what a positive experience it was to write about a happy day in detail" (positive emotion phrase) or "I am sad because of what happened today" (negative emotion phrase). An anxiety related phrase consisted of sentences such as "I am stressed out because of my exams". While a worry phrase included "I lay in bed thinking about my upcoming exams, what I knew, what I didn't and what my friends think and their advice for boosting your confidence". Table 4 below shows the frequency for each category across the 3 writing days for control and experimental groups'.

Table 4. Frequency of phrases for experimental and control participants with percentages in parentheses

	Control group (n=11)			Experimental group (n=11)		
	Negative Emotion	**Positive Emotion**	**Worry**	**Negative Emotion**	**Positive Emotion**	**Worry**
Day one	13 (14%)	16 (42%)	4 (7%)	27 (30%)	4 (10%)	17 (32%)
Day two	3 (3%)	10 (26%)	8 (15%)	25 (28%)	3 (7%)	11 (21%)
Day three	4 (4%)	0 (0%)	6 (11%)	17 (19%)	5 (13%)	6 (11%)

The analysis of the frequency of phrases was conducted utilising chi-square for independence to examine whether there were any significant differences between control and experimental frequencies. Three 3 x 2 chi-squares were employed for the control and experimental groups across negative emotion-related phrases, worry-related phrases and positive emotion-related phrases for control and experimental frequencies across the three writing days.

On the first day of writing control diaries contained 14% of the total of negative emotion phrases while the experimental diaries contained 30% and on the second day it was 3% and 28% respectively. Control diaries were found to have 4% negative emotion words for the last writing day compared to 19% for the experimental diaries. These differences were not statistically significant χ^2 (2, 24) = 4.67, *ns.* When looking at worry phrases, on the first day of writing the control diaries were found to contain 7% of the total worry-related phrases while the experimental diaries contained 32% and on the second day it was 15% and 21% respectively. On the final day of writing both control and experimental diaries contained 11% of worry phrases. Again, these differences were not statistically

significant χ^2 (2, 24) = 3.97, *ns*. Control diaries included 42% of the total positive emotion phrases on the first day of writing while the experimental diaries contained 10%, on the second day of writing it was 26% and 7% respectively. On the final day there were no positive emotion words in the control diaries and 13% in the experimental diaries. The differences for positive emotion phrases was statistically significant χ^2 (2, 24) = 12.50, $p < 0.01$.

Chapter 4

4. Correlations of Variables Associated with High Worry

Exploratory data analyses were conducted using the measures completed at the assessment phase to investigate what other variables are associated with high worry in order to further delineate the etiology and maintenance of high worry. These relationships were examined by correlating all variables prior to conducting multiple regression to examine which specific variables accounted for the variance in worry scores. The baseline scores for worry were used in the correlation matrix, and were also used as the dependent variable in the multiple regressions. Because of the effects of the law of initial values, it could be argued that change difference scores should be employed to examine to effect of other variables on worry and as a manipulation check the analyses were also run using change scores. There were no significant differences between the analyses, and the baseline results are presented here.

Means and standard deviations for participants' scores were generated for measures used to explore other variables associated with high worry, presented in Table 5. Each participant's base-line PSWQ score was correlated with their baseline anxiety scores (state and trait) from the STAI, number of events using the TEQ, the PCL-C, the CSQ, and the ECQ. The results are present in Table 6 below:

Table 5. Means (M) and standard deviations (SD) for trauma, anxiety and coping strategies measured at baseline for experimental and control groups

Measures of Trauma and Coping	**Experimental Group (*n*=13)**		**Control Group (*n*=13)**	
	M	**SD**	**M**	**SD**
STAI trait anxiety score	50.92	10.02	47.62	12.74
STAI state anxiety score	46.46	10.09	45.92	14.46
TEQ-number of events	3.46	2.50	2.62	1.80
PCL-C	32.69	13.09	36.85	14.90
CSQ-Detached Emotional	32.23	8.80	32.15	9.47
CSQ-Rational	14.38	4.05	14.92	4.80
CSQ-Avoidance	10.62	3.80	12.92	4.01
ECQ-Emotional Inhibition	7.31	6.09	10.69	7.00
ECQ-Rumination	12.54	3.55	10.85	5.52

Note: STAI=state trait anxiety inventory, TEQ=traumatic events questionnaire, PCL-C=posttraumatic checklist-civilian, CSQ=coping styles questionnaire, ECQ=emotional control questionnaire

Table 6. Intercorrelations between the PSWQ as the dependent variable and measures of coping, anxiety, and trauma

	STAI *State*	**STAI *Trait***	**TEQ-NE**	**PCL-C**	**CSQ-DE**	**CSQ-R**	**CSQ-A**	**ECQ-EI**	**ECQ-R**
PSWQ	.34	.66**	.44*	.49*	-.57**	-.07	-.21	-.20	.77
STAI *State*		.57**	.09	.45*	-.32	-.19	.20	.29	.28
STAI *Trait*			.48**	.64**	-.69**	-.41*	.27	.24	.69**
TEQ-NE				.32	-.41*	-.17	.37	.23	.37
PCL-C					-.41*	-.23	.34	.27	.52**
CSQ-DE						.52**	-.08	-.02	-.71**
CSQ-R							-.18	-.04	-.13
CSQ-A								.57**	-.05
ECQ-EI									-.05

Note: **p<0.01, *p<0.05, STAI=state trait anxiety inventory, TEQ-NE=traumatic events questionnaire-number of events, PCL-C=posttraumatic checklist-civilian, CSQ-DE=coping styles questionnaire-detached emotional, CSQ-R=rational CSQ-A=coping styles questionnaire-avoidance, ECQ-EI=emotional control questionnaire-emotional inhibition, ECQ-R=emotional control questionnaire-rumination

4.1 Correlations among Anxiety and Rumination Measures

The correlation matrix showed a significant relationship between trait anxiety and high worry (r=.66) and rumination and high worry (r=.77). This relationship suggests that those with high worry are also likely to score high on trait anxiety and indices of rumination. Furthermore, trait anxiety significantly correlated with rumination (r=.69), and state anxiety (r=.57). Given that both forms of the State- Trait Anxiety Inventory contain items related to an individual's physiological state then the relationship between the two was to be expected. Furthermore, the significant relationships found between trait anxiety, rumination and worry are also not surprising and consistent with other research (see for example, Borkovec, 1983 #49, Fisher, 1999 #48 & Fresco, 2002 #47}.

Rumination was not significantly related to state anxiety, number of traumatic events, rational coping (i.e., problem-solving), avoidance or emotional inhibition (the degree to which emotion is controlled) with coefficients ranging from -.05 to .37 *ns*. Rational coping and emotional inhibition are measures of adaptive coping and would not be expected to be related to ruminative thinking. In contrast, rumination was significantly related to current post-trauma symptoms (r=.52). The post-trauma symptoms measure contains mainly items relating to images, thoughts and feelings about a past event/s and this could account for the relationship found. A significant inverse relationship was also found between rumination and emotional detachment (r=-.71) a measure of feeling separate from one's problem and the emotion associated with it.

4.1.2 Correlations among Trauma Variables

The scatterplots for number of events (see figure 4) and post-traumatic symptoms (see figure 5) show some divergence is scores in that there were participants who experienced more events and trauma symptoms and low worry scores. Nevertheless, a significant correlation was observed between number of traumatic events and high worry (r=.44). As can be seen from figure 4 below as the number of traumatic events increase so do worry scores. Figure 5 below also shows that there is a significant relationship between current post-traumatic symptoms and high worry (r=.49).

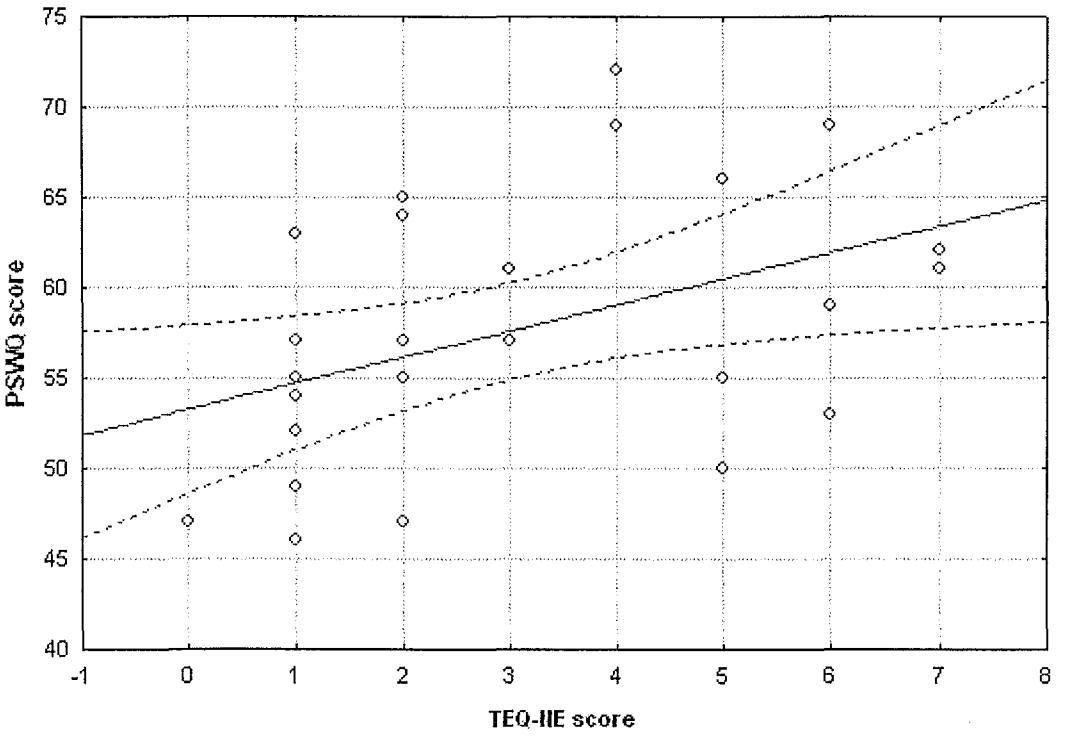

Figure 5: Correlation between worry and number of traumatic events from the TEQ

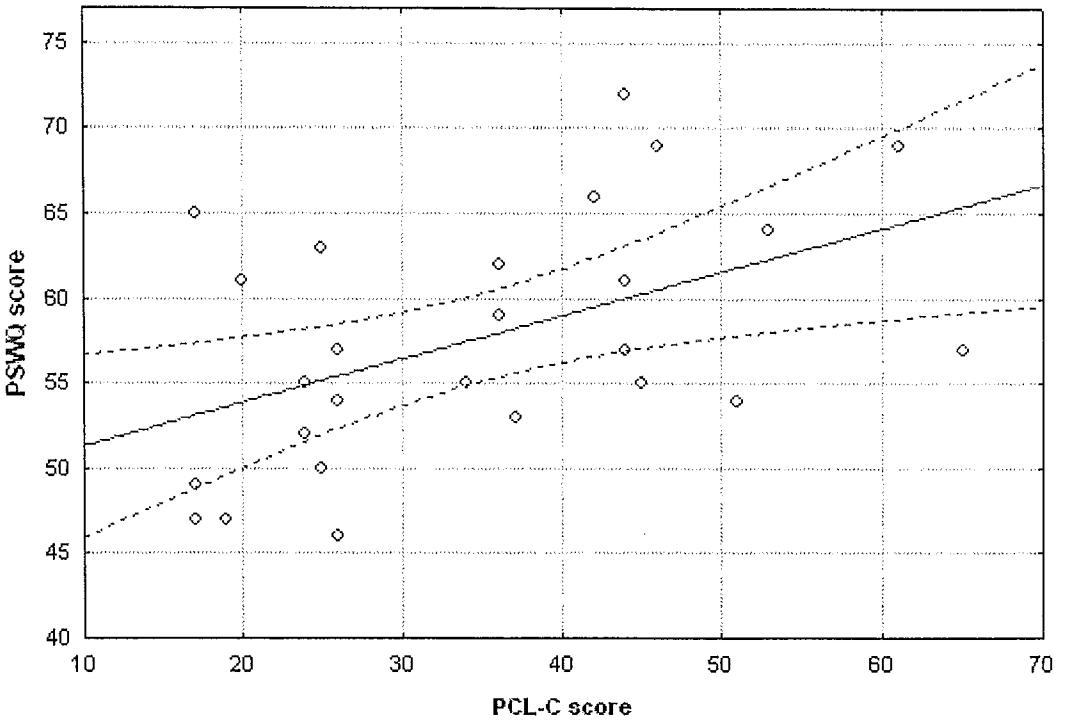

Figure 6: Correlation between high worry and current trauma symptoms

Number of traumatic events was not significantly correlated with state anxiety scores (r=.09) or current trauma symptoms (r=.32). The non-significant relationship between number of traumatic events and current trauma symptoms suggests that these two are independent of each other. Number of traumatic events and current trauma symptoms were significantly related to trait anxiety scores with coefficients of .48 and .64 respectively. A significant inverse relationship was also found between the trauma variables and emotional detachment (r=-.41 for both) while only current trauma symptoms were significantly correlated with state anxiety (r=.45).

4.1.3 Correlations among Coping Variables

The scatterplot (see figure 7 below) shows that detached emotional was largely associated with high worry scores. A significant inverse relationship was found between emotional detachment and high worry (r=-.57) suggesting that the more emotionally involved participants were with their problems the higher their worry score.

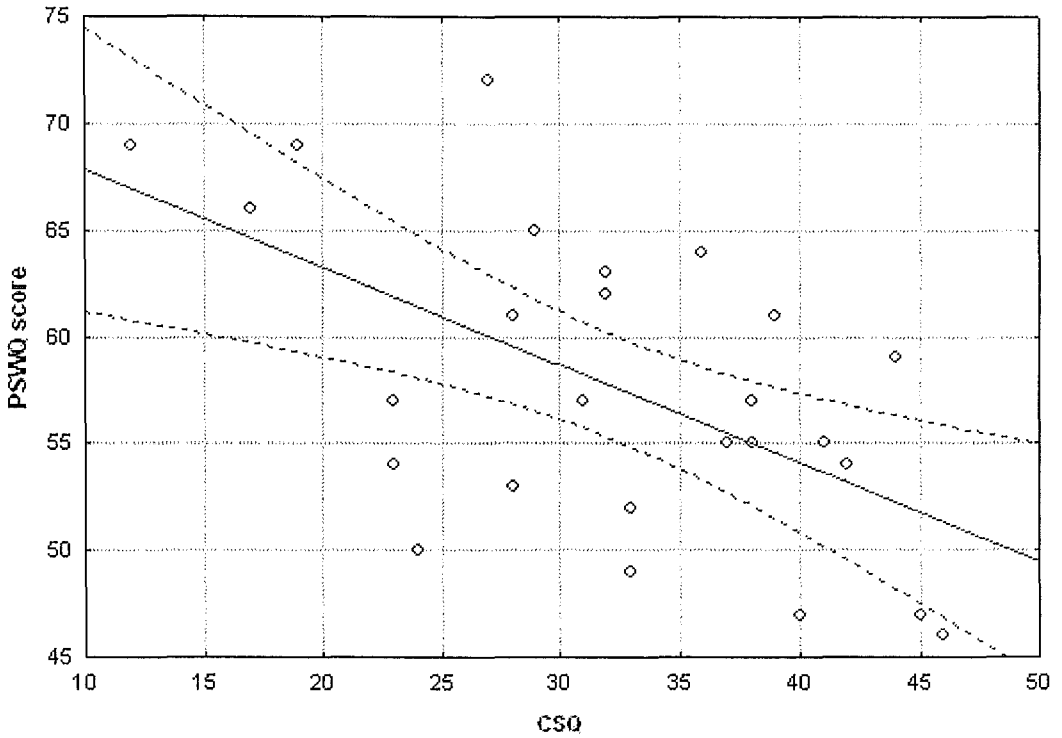

Figure 7: Correlation between worry and detached emotional factor

Significant inverse relationships were observed between emotional detachment, rational coping and trait anxiety with coefficients of -.69 and -.41 suggesting that those high in trait anxiety are likely to be emotionally involved with their problems and use less problem solving strategies. A significant relationship was also found between emotional detachment and rational coping (r=.52) and between avoidance and emotional inhibition

(r=.59). The intercorrelations revealed no other significant relationships within the coping strategies indices or between these scales and the other measures. However, while not significant, avoidance did correlate with number of traumatic events and current post-trauma symptoms at the $p<.10$ level with coeffiecients of .36 and .34 respectively.

4.2 Multiple Regression

To further explore the relationship of trauma, coping styles and worry multiple regressions were performed using the variables from the correlation matrix and the baseline worry score as the dependent variable. As previously stated, worry scores were utilised as the dependent variable due to worry being a primary symptom of GAD in order to investigate possible etiological and maintenance factors. Since these variables were included primarily for supplementary analysis interaction terms for the regressions were not explored.

When all variables included in the regression it showed that number of traumatic events and less avoidance significantly predicted worry scores (adjusted R squared .728). No other variables significantly predict high worry. A summary of the regression analysis is displayed in Table 7.

Table 7. Summary of the regression analysis with PSWQ as the dependent variable

Variable	Beta	t	Significance	R squared	Adjusted R squared
STAI-1	.106	.767	.454	.826	.728
STAI-2	.331	1.534	.144		
TEQ-NE	.296	2.239	.039		
PCL-C	.171	1.164	.261		
CSQ-DE	.062	.314	.757		
CSQ-R	.113	.791	.440		
CSQ-A	-.367	-2.622	.018		
ECQ-EI	-.188	-1.368	.190		
ECQ-R	.370	1.865	.080		

STAI=state trait anxiety inventory (1=state, 2=trait), TEQ-NE=traumatic events questionnaire-number of events, PCL-C=posttraumatic checklist-civilian, CSQ-DE=coping styles questionnaire-detached emotional, CSQ-R=coping styles questionnaire-rational, CSQ-A=coping styles questionnaire-avoidance, ECQ-EI=emotional control questionnaire-emotional inhibition, ECQ-R=emotional control questionnaire-rumination

Examining the matrix of correlations (see Table 6) showed that a cluster of variables intercorrelated strongly. These were anxiety (STAI 1 & 2), rumination and detached emotional (CSQ-DE) variables. While rumination was retained, the others were removed from the equation, due multicollinearity (Cohen & Cohen, 1983). Omitting anxiety and detached emotional from the second regression showed that number of traumatic events and less avoidance still significantly predicted worry, however rumination accounts for a significant amount of the variance in worry scores (adjusted r squared .699), see summary results in Table 8 below. When rumination is included the effect for negative life events is predictably constrained (Roger, 1995b) and suggests that life events offer something to focus on for someone who ruminates. Together, the predictors were significant and accounted for 70% of the variance in baseline worry scores.

Table 8. Summary of the regression analysis with PSWQ as the dependent variable

Variable	Beta	t	Significance	R squared	Adjusted R squared
TEQ-NE	.325	2.531	.020	.771	.699
PCL-C	.292	2.045	.054		
CSQ-R	.044	.392	.699		
CSQ-A	-.373	-2.554	.019		
ECQ-EI	-.110	-0.795	.435		
ECQ-R	.504	3.569	.002		

Note: PSWQ=Penn State Worry Questionnaire, TEQ-NE=traumatic events questionnaire-number of events, PCL-C=posttraumatic checklist-civilian, CSQ-R=coping styles questionnaire-rational, CSQ-A=coping styles questionnaire-avoidance, ECQ-EI=emotional coping questionnaire-emotional inhibition, ECQ-R=emotional control questionnaire-rumination

Chapter 5

5.0 Discussion

5.1 Findings

5.1.1 Overall Summary of Findings

The primary aim of this study was to utilise Pennebaker's emotional disclosure paradigm as a measure of emotional processing to evaluate its effect on high worry. It was expected that worriers in the experimental group would demonstrate a greater reduction in worry and state anxiety compared to worriers in the control group. The results showed that worry scores significantly reduced from baseline to follow-up for both groups. These findings were not consistent with the hypothesis; however data from the diary analyses offered some possible explanations as to why worry significantly reduced irrespective of which group participants were assigned to. The findings also showed that there were no significant reductions in state anxiety and which also did not support the hypothesis. Overall, the findings suggest that the emotional disclosure paradigm had a significant effect on worry scores, regardless of which group participants were assigned to, but did not produce any significant reductions in state anxiety.

Furthermore, exploratory investigations were also conducted to ascertain whether there was a relationship between high worry and trauma variables, and to assess avoidance and coping strategies utilised by those high in worry. These exploratory investigations were

conducted to further elucidate psychological factors associated with the etiology and maintenance of chronic worry and Generalised Anxiety Disorder (GAD) as suggested by avoidance theory of worry and GAD (Borkovec, Alcaine & Behar, 2004). Significant relationships were found between high worry and trauma variables and high worry, emotionally detached coping and avoidance. Additionally, high worry was found to significantly correlate with state anxiety and rumination. High worry was not associated with adaptive coping indices of emotional inhibition or rational. Most findings were in line with expectations and provided support for the hypothesis that high worry would be related trauma variables and to maladaptive coping styles. However, contrary to expectations low levels of avoidance was found to significantly predict high worry.

The following sections will examine the results in relation to the hypotheses and discuss possible explanations of the findings in this present study.

5.1.2 Findings from the Emotional Disclosure Paradigm Manipulation

It was expected that high worriers in the emotional processing group would show a greater reduction of worry and state anxiety over the long-term in comparison to high worriers in the control group. The results did not support this hypothesis. Rather, the analysis revealed that worry significantly decreased across both groups from baseline to follow-up. Furthermore, it was expected that writing about current distressing worries would reduce state anxiety more than writing about trivial matters. However, the results did not support this and showed that state anxiety did not decrease for either group from

baseline to follow-up. Despite the fact that the mean differences in worry scores at baseline were not significantly different it is possible that differences in the distribution had an effect on the outcome. Had the groups began the writing phase with similar mean worry scores then between-group differences may have occurred. Importantly, when the mean worry scores are examined from baseline to follow-up it could be observed that at follow-up participants still reported worrying within the range characteristic of chronic worry, above the cut-off score of 45 (Behar, Alcaine, Zuellig & Borkovec, 2003). Consequently, while participants in this research experienced a significant reduction in worrying they remained high worriers at follow-up. Therefore, it is not particularly surprising that participants did not report a significant reduction in state anxiety.

Post-hoc analyses showed that the reduction in mean worry scores occurred between administration time 1 and 3 and time 2 and 3. The pattern of change observed in mean worry scores is consistent with findings from research utilising this paradigm with participants writing about stressful or traumatic events (e.g., Hunt, 1998; Klein & Boals, 2001; Lepore, Greenberg, Bruno & Smyth, 2002; Lumley & Provenzano, 2003; Pennebaker & Francis, 1996). These studies found significant changes in their outcome measures, such as reduced health centre visits, improved mood, and less intrusive thoughts between post-writing and follow-up. In a review of the emotional disclosure paradigm, Pennebaker (2003) argues that the effects of writing appear to be gradual and cumulative as disclosing an emotional upheaval, especially if the topic has not been previously discussed, involves much emotional and psychological work. Thus, in order for the distress to subside induced by such work, a considerable amount of time is likely

to be required. Recent research by Klein & Boals (2001) suggests that one consequence of writing may be that it frees up working memory capacity as the demand on cognitive resources has reduced due to the completion of emotional disclosure. (Lepore et al, 2002) has also proposed based on his findings that the immediate emotional arousal associated with written disclosure diminishes with time and, over the ensuing weeks leads to fewer emotionally valenced thoughts about the writing topic. Thus, it is possible that in the weeks following writing participants experience fewer thoughts about the content of worry that they wrote about and were able to devote time to thinking about other matters. Measuring change systematically during the follow-up period may help to further explain the longer-term beneficial effects of writing. For example, participants could complete a questionnaire at the end of each week during the follow-up period assessing how often they had thought or worried about what they had written while control participants could monitor their worries.

However, in the present study it is unclear why a reduction occurred in both groups as control participants were instructed to write about seemingly innocuous and unemotional topics. Notwithstanding that, the significant reduction in mean worry scores between the last writing day and 1 month post-writing highlights the importance of follow-up when examining the effects of writing on outcome measures.

Although not significant, state anxiety scores across the writing phase for controls seemed to decrease slightly yet remained fairly stable for experimental participants. While pure conjecture, it is possible that the pattern of scores reflect the contextual nature

of state anxiety and its relationship to worry. Accordingly, both groups were probably apprehensive coming into the study and worried about the nature of the task they were about to undertake. The writing instructions required little introspection for control participants whereas instructions for the experimental group required participants to label, structure, and organise their worries. Thus, the pattern of results for state anxiety scores could possibly just reflect the demands of the research.

The outcome of the writing phase suggested that the intended manipulation did not have the predicted effect of finding between-group differences in the amount of worry reduction. Closer analysis of the diary content revealed some interesting trends in the frequencies of emotion (positive and negative) and worry-related phrases. Moreover, these trends offer some explanation as to why worry reduced in both groups.

A Chi-square test for independence showed that there were significant differences across the contingency table for positive emotion-related phases. While this type of non-parametric analysis does not indicate where the significant differences lie, it was observed from the frequencies that control participants wrote more positive emotion related phrases on day one and two in comparison to the experimental group. During these two days the experimental group were asked to write about their emotions with respect to their most current distressing worry, therefore it was not surprising that there were relatively few positive emotion-related phrases across the three writing days. This is also congruent with the nature of worry being primarily about possible feared outcomes or negative events that have already occurred (Roemer & Borkovec, 1993). Whereas the

control group were asked to write objectively about the previous day on the first writing day, what they had done since waking on the second day and describe what they were going to do over the coming week. It is feasible that being exposed to one's day could have lead to some realisation that what actually occurred was not what one had predicted during previous worry episodes. Thus, it is possible that exposure could account for the reduction in worry observed in the control group. In this context, exposure could be viewed as observing information inconsistent with previously held assumptions, thus creating cognitive dissonance. In other words, the writing instructions created conflict between previously held beliefs and reality which needed to be resolved. Simply put, control participants may have had a moment of insight effective enough to reduce worry long-term. However, it is equally plausible that control participants were habituated to emotional experience and worry as the diary analysis showed that despite instructions to the contrary, individuals in this group were exposed to emotion and worrying as they wrote about their day. Thus, while writing about their day control participants were indirectly exposed to emotion and worrying and habituated to this experience across the writing phase.

Interestingly, Borkovec & Lyonfields (1993) has argued that worry can also be "superstitiously" reinforced (p. 105). He argues that most future events worried about actually never occur, and as a consequence worriers develop the belief that worrying prevented its occurrence thus reinforcing worry as an effective strategy to avoid future aversive stimuli. If the data in this study was to reflect Borkovec's theory about superstitious reinforcement then worry scores for the control group should have

demonstrated no change or possibly even an increase in worrying. Interestingly, the control group did not write any positive emotion-related phrases on the last writing day and this begs the question whether looking ahead to the next week invoked worrisome thought which suppressed pleasant emotions.

The diary analyses of worry-related and negative emotion related phrases found no significant differences between the experimental and control groups' across the writing days. Nevertheless, the frequencies showed that experimental diaries were found to have a greater proportion of worry-related and negative emotion related phrases compared to control diaries and the pattern observed in those frequencies provides some explanation as to why worry significantly reduced in the experimental group.

The pattern displayed in the frequencies showed that there was a reduction in both worry and negative emotion related phrases incrementally across the three writing days for the experimental group. Lepore and colleagues (Lepore et al, 2002) argue that the reduction of symptoms that is often observed in the outcome data of expressive writing studies can be accounted for by habituation. For example, Lepore (1997) found that expressive writing attenuated the relationship between intrusive thoughts about an imminent examination and depressive symptoms. This result was also replicated by Klein & Boals (2001). They found that individuals assigned to writing about a negative event showed a significant reduction in intrusive thoughts and avoidance about the negative event from post-test to follow-up. Based on these findings Lepore and colleagues (2002) postulate that expressive writing often evokes negative emotion due to the description of elements

associated with stressful events such as significant others, the environment and activities along with one's physical sensations, emotions and thoughts in response to the event. Such emotional engagement is necessary for habituation to occur and consistent with Foa and Kozak (1998; 1986) who argue that successful habituation can be evidenced by a strong initial experience of negative emotion followed by gradual decreases of affective arousal within and across exposure. While purely speculative, it is plausible that by directing experimental participants' attention toward worry-related thoughts and feelings, habituation to worrying and its concomitant negative emotion may be facilitated.

A limitation of the diary analysis was that it was quite simplistic and it is possible that a more in-depth analysis of the diaries in this study would have yielded significant differences that would have increased the utility of the data, enabling more searching generalisations to be made. For example, it may have been useful to analyse the text for indications of insight and solutions to problems that may have been related to participant's worries or phrases reflecting a sense of closure and closure. This type of analysis which was beyond the scope of this thesis would have further elucidated the reduction of worry that occurred. Thus, the current results need validating before reaching any firm conclusions about the usefulness of expressive writing as a therapeutic tool in the treatment of GAD.

IN sum, results found in the writing phase of the present study are consistent with aspects of avoidance theory of worry and GAD which argues that worry serves as an avoidance strategy to avoid future negative events, and to allow the suppression of somatic

responses to imaginal material (Borkovec, Alcaine & Behar, 2004). Furthermore, this theory has speculated that another function of worry is to suppress emotion in general. Accordingly, Borkovec et al, (2004) argue that as a consequence of utilising worry as a cognitive avoidance strategy emotional processing is prohibited and anxious meanings are maintained. Thus, the significant reduction in worry implies that the emotional disclosure paradigm promoted the emotional processing of current distressing worries and consequently inhibited the avoidance of negative emotions, possibly via the mechanisms of exposure and habituation. The results also suggest that worrying at high levels at follow-up is associated with somatic symptoms. Moreover, these findings suggest that engaging with one's emotions reduces worrying in the in the short-term. Furthermore, the results provide tentative support for an emotional regulation framework suggested by Mennin (2002) who argues that worry can be viewed as a cognitive control strategy that is utilised to compensate for the emotional regulation difficulties experienced by individuals who worry excessively. According to Mennin (2002) the compensatory nature of worry to regulate emotion experience only serves to divert attention away from processing and utilising emotional information.

5.1.3 Findings Regarding the Relationship between Trauma Variables and High Worry

It was expected that there would be a relationship between high worry and trauma variables. Significant positive correlations were found between high worry, the number of traumatic events experienced by participants, current post-traumatic symptoms. This indicated that those who had experienced numerous traumatic events were also high in

worry. As ever, correlations do not imply causality, so it cannot be concluded that traumatic events and their associated symptomology cause chronic worry. This is supported by the fact that the results did not show a one to one relationship with high worry and trauma variables, indicating a complex relationship between chronic worry and trauma. Thus, perhaps a history of trauma may make individuals more vulnerable to psychopathology in general, as opposed to GAD in particular (Borkovec, Alcaine, & Behar, 2004). Interestingly, when trauma variables were added to the regression model, number of traumatic events significantly predicted worry scores at baseline. However, the amount of the variance accounted for the by number of traumatic events was reduced when rumination was added to the prediction model. Thus, the ability of traumatic events to account for worry was constrained by the addition of rumination which is consistent with the research conducted by (Roger, 1995b). Based on this research, Roger (1995) argued that the relationship between these two variables is nothing more than life events giving someone who ruminates something to ruminate about. If this is indeed the case, it is possible that ruminating over past events produces an emotional response, which in turn exacerbates symptoms of trauma and heightens arousal to threat related stimuli, and thus worry is activated to dull this experience. Examining current-trauma symptoms in the regression model showed that this factor was very close to reaching significance, indicating that current symptoms of trauma may also be related to chronic worry.

Despite the caveats outlined above, these findings provide evidence to support the research of Blazer (1987) and Roemer and colleagues (1997) who found a high prevalence of traumatic life events among high worriers. In sum, the significant

relationship between high worry and number of traumatic events may have a cumulative effect for those who develop chronic worry. In that the more traumatic events experienced the more sensitised someone is to developing assumptions about the world being a dangerous and unpredictable place. This in turn could lead to continued heightened arousal levels such that they become unbearable and need to be avoided (Borkovec, Alcaine, & Behar, 2004). While further research is needed to test that supposition, the results found here are consistent with some of Borkovec et al, (2004) hypotheses about the origins of chronic worry.

From a clinical perspective, knowing that a client has experienced a number of traumatic events has less utility than knowledge about current symptomology especially for treatment purposes. Clinically, the significant relationships between trauma variables and chronic worry suggest that trauma history and its associated symptoms need to be assessed when clients present with excessive worry and anxiety in order for them to be addressed in treatment if necessary.

5.1.4 Findings Regarding Coping Strategies and High Worry

It was expected that worriers would also score high on maladaptive coping strategy measures and that there would be a relationship between these and trauma variables. The findings supported the hypothesis that worriers would score high on maladaptive coping strategy measures. There were statistically significant relationships between high worry and emotional detachment, rumination and trait anxiety. The relationship between

rumination, trait anxiety and high worry is not surprising as these variables have been shown to overlap considerably, and is consistent with past research that has also found significant correlations between measures of worry, anxiety, rumination and depression (Meyer et al, 1990; Tallis, Davey & Bond, 1994).

The significant relationship between emotional detachment and high worry suggests that those high in worry were also emotionally more involved in their problems. This is further supported by the non-significant relationships between high worry and measures of adaptive coping, namely rational coping (problem-solving) and emotional inhibition (ability to step back for one's problems) and unexpectedly between high worry and avoidance. Importantly, the measure of avoidance employed by this study loaded on cognitive avoidance (i.e., I just pray things will get better) as opposed to behavioural avoidance (i.e., avoiding situations reminiscent of the past). Not surprisingly, there was no relationship between number of traumatic events and current-trauma symptoms. This suggests that experiencing trauma symptoms are independent of the number of events experienced. Additionally, a significant correlation between emotional detachment and trauma variables was found, which showed that as the number of traumatic events and trauma symptoms increased the more emotionally involved high worriers become with their problems. This relationship is also consistent with the null association between high worry and adaptive coping.

Surprisingly, when avoidance was included in the regression model it was found that high worry is significantly predicted by less cognitive avoidance. This was surprising because

it is counter-intuitive to what Borkovec suggests when he argues that worry is a cognitive avoidance response (Borkovec, Alcaine, & Behar, 2004). Additionally, Mennin (2002) has suggested avoidance strategies used by chronic worriers may lead to an increase in emotional intrusions which in turn may lead to an increase in experiencing emotions as aversive and to the intensification of worry as a strategy to control these experiences. Thus, it was expected that indices of avoidance would correlate with high worry i.e., if individuals employ one strategy for cognitive avoidance then it would not be unrealistic to assume that they would utilise others. Nonetheless, this finding does support some Borkovec's ideas about the nature of worry. For example, Borkovec and Roemer (1995) found that individuals with GAD perceived worry to be a way of problem-solving. Participants in this study reported that worry was a way to decide how to avoid other emotional topics or prevent terrible events, prepare for the worst and to reduce the likelihood of such events. If high worriers in the present study held such beliefs then it follows that high worriers would rate themselves as not being avoidant of their problems. Rather, the findings of this study seem to suggest that instead of avoiding issues and associated threat stimuli, participants are emotionally involved with their troubles and what the outcome might be. This result is inconsistent with findings from (Meyer et al, 1990) who found that high worry scores were significantly related to avoidance strategies such as wishful thinking and problem avoidance. Other studies have also found that avoidance strategies are used by high worriers (Davey et al., 1992, Davey, 1993, cited in Davey, 1994). Additionally, this result is also inconsistent with the idea that worry is a cognitive avoidance strategy. Thus, it remains uncertain that if worry and cognitive avoidance are not related then is the suggestion that worrying is being avoidant, as

assumed by Borkovec's avoidance theory of worry and GAD, correct. Importantly, these findings need to be interpreted cautiously as avoidance is a construct that has been difficulty to conceptualise and define, hence the lack of well-validated empirical scales to accurately measure this type of coping strategy (Lyne & Roger, 2000; Roger, 1995a, 1993). Thus, problems of validity and reliability in measurement are inherent with any construct not accurately conceptualised or defined.

5.2 General Limitations

The current sample is limited by its restriction to university students and low sample size. Generally, university populations are often considered to be a young and homogeneous group that is relatively intelligent and high functioning in comparison to both clinical samples and the general population (Ruscio, Borkovec, & Ruscio, 2001). However, these authors have also noted that it has generally been found in the worry literature that results emerging from research with university samples have subsequently been replicated with clinical samples.

Another possible limitation of this study is that the sample was restricted to high worriers. While the present study has yielded some fascinating results there is a limit to the conclusions that can be made. Utilising a group of non-worriers would have improved the overall design of the current study and allowed for more definitive conclusions to be made as it is still uncertain whether the findings from this study are relevant to chronic worry or worrying in general. Additionally, a non-worry group would have also allowed

for comparison to be made with respect to trauma and coping variables. Overall the non-inclusion of non-worriers limits the generalisability of the findings to the general population. Also link to the instructions for the control group – future research could employ a group that does nothing rather than write about a trivial topic.

With respect to the diary analysis the employment of independent raters to blindly code the diaries would have enhanced the utility of the outcome data and also enabled inter-rater reliability to be established.

An ethical consideration for the present study was the possibility that the methodological design could cause undue distress. Ethics approval was granted on the basis of the inclusion of debriefing during the writing phase. At these times, control and experimental participant's current state, well-being and ability to continue was assessed. Thus, it is possible that the interactions that occurred during the debriefing with the principle researcher were the mechanism of change in worry. Furthermore, the writing instructions used in the control group, results suggest that emotional processing on some level may have occurred. If this is the case then the instructions were not effective enough as the dependent variable. Future research replicating these findings could address this issue by either having a non-writing control group or as has been done by other writing studies, getting control participants to describe the room they are in.

5.3 Future Directions

The findings from the emotional disclosure paradigm suggest that emotional processing occurred on some level. However, replication of these findings would be more reliable by the employment of physiological or self-report measures of arousal during the writing phase. Utilisation of such measures would provide data on autonomic arousal as participants explore their current, distressing worries and may be a more direct indicator of emotional processing than a reduction in worry. With respect to this research, it would have been interesting to observe whether there were any differences in autonomic arousal between experimental and controls. Using a physiological or self-report measure of arousal could also provide evidence of fear/worry activation and reduction to support conclusions of exposure and habituation processing being the mechanism of action to decrease worry.

The relationship between chronic worry and trauma has been hypothesised to be a possible etiological and/or maintenance factor in the development of GAD (Borkovec, Alcaine & Behar, 2004). According to Foa and Kozak's framework (1986) situations that vary in their degree of similarity to fear information stored in memory elicit varying degrees of fear. Thus, Foa and Kozak (1986) argue that by increasing the similarity between the content of exposure situations and that of fear information promotes a greater fear response and consequently, greater emotional processing. Based on this premise, and the relationship between trauma and worry, future research could consider whether writing about past trauma is a better match to aversive emotions and images than

the content of current worry. Outcome data from the use of a trauma writing groups with high worriers would also provide further evidence for trauma as an etiological and/or maintenance variable in GAD.

5.4 Conclusions

The results from the emotional disclosure paradigm utilised in this study and elsewhere suggest that writing promotes beneficial psychological change. The reduction in worry provided evidence that focusing attention toward current distress worries and exploring its associated emotions facilitated emotional processing. This finding along with relationships found between worry and maladaptive coping strategies have suggested important implications for avoidance theory of worry and GAD and for conceptualising excessive worry within the emotion regulation framework. Importantly, participants still had elevated levels of worry at follow-up, despite a significant change in worrying. So, these findings are not suggesting that the emotional disclosure paradigm is effective as a stand alone treatment for those high in worry. Rather, the significant reduction in worry suggests that expressive writing may be an effective adjunct technique which could be assigned as homework as part of any cognitive-behavioural treatment of excessive worrying or GAD.

While much research exists for worry, GAD is a poorly understood disorder and few empirical studies have been conducted to further our understanding of this disorder's etiology or maintenance. The findings from the exploratory investigations into trauma

variables does provide tentative evidence that worry, number of traumatic events and current post-trauma symptoms are related. The overlap noted here warrants further empirical consideration as it is possible that worry may help avoid aversive images or stimuli associated with past trauma. If this proposition is borne out by future research then it will have implications for theory and for clinicians assessing individuals presenting for treatment for excessive worry. Perhaps, the utility of Pennebaker's paradigm will be most fruitful for those with co-occurring high worry and trauma.

In sum, the present study has yielded some interesting findings and provides some exciting avenues for future research with high worriers and GAD samples.

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Appendices

Appendix A
Information Sheet – Assessment

Contact Details:

Principle Research, Annmaree Kingi (aki16@student.canterbury.ac.nz)
C/- The Psychology Department,
Office (room 427)
Phone: (extn 7098)

Principle Supervisor, Professor Kenneth Strongman
(Ken.Strongman@canterbury.ac.nz)
Office (106, History Building)
Phone: (extn 6965)

The questionnaires you are about to fill in will assess your eligibility to partake in this study interested in the psychology of writing. These questionnaires will take approximately 30 minutes of your time to complete and are completely anonymous. Once these questionnaires have been completed the principle researcher will score them to assess your eligibility for participation. Once the assessment of the questionnaires is completed you will be contacted to inform you of your eligibility and should you be eligible and wish to partake further arrangements will be made.

Do you have any questions at this point? If you still wish to participate, please read and sign the attached consent form.

Appendix B – Consent Form/Assessment

Annmaree Kingi
(contact details)
email: aki@student.canterbury.ac.nz

(date)

CONSENT FORM

Writing and Psychology

This study is interested in the psychology of writing. It is important that prior to participation in this research that all persons are screened for eligibility. The screening process will involve filling out 2 questionnaires and this should take approximately 30 minutes of your time. Additionally, I understand that any personal information disclosed in these questionnaires is confidential and no identifying information provided by me will be published or accessed by anyone other than the principle researcher.

Should I be eligible for participation in this research I understand that I will be contacted. I also understand that I may at any time withdraw from participating in this study, including withdrawal of any information that I have provided.

NAME (please print): .....

Signature:

Date:

Appendix C – Writing Phase Information Sheet

This study is an important project looking at writing. Over the next three days, you will be asked to write about one of several different topics for 20 minutes each day. On your first day you will come back to this office where I will talk with you and give you your instructions for the day. You will then be escorted to a small office where you will be alone to write. I will close the door and that will be your signal to begin writing. At the end of the 20 minutes, I will knock on the door to let you know that the 20 minutes are up. Prior to and at completion of your writing I would like you to fill in the subjective ratings form.

The only rule we have about your writing is that you write continuously for the entire time. If you run of things to say, just repeat what you have already written. In your writing, don't worry about grammar, spelling, or sentence structure. Just write. Different people will be asked to write about different topics. Because of this, I ask that you not talk with anyone about the experiment. I can't tell you what other people are writing about or anything about the nature or predictions of the study. Once the study is complete, however, I will tell you everything.

It is important for you to know that sometimes people feel a little sad or depressed after writing. If that happens, it is completely normal. Most people say that these feelings go away after an hour or so. If at any time over the course of the experiment you feel upset or distressed, feel free to contact the principle researcher (phone number) or the University of Canterbury health centre at 364-2402.

Finally, your writing is completely anonymous and confidential. Your journal is coded with an ID number. Please do not write your name on the journal. If you don't feel comfortable turning in your writing samples at the end of the experiment, you may keep them. I would like you to hand them in, as this experiment is interested in what people write. If you do give your consent for the writing samples to be given to the experimenter, your writing will not be linked to you.

Additionally, you will be required to fill in five questionnaires at the beginning of the study which should take approximately an hour and one questionnaire several times during the writing times. You will also be asked to come back to fill in follow-up questionnaires, at the completion of the study and four weeks following this writing task. There will be two questionnaires to fill in at both times and they will only take approximately 10 minutes each to complete.

Do you have any questions at this point? If you still wish to participate, please read and sign the consent form.

Appendix D – Consent Form Writing Phase

Annmaree Kingi
(contact details)
email: aki@student.canterbury.ac.nz

(date)

CONSENT FORM

Writing and Psychology

I have read and understood the description of the above-named project. On this basis I agree to participate as a participant in the project, and I consent to publication of the project with the understanding that anonymity will be preserved and no identifying information provided by me will be published or accessed by anyone other than the principle researcher.

I also understand that I may at any time withdraw from participating in this study, including withdrawal of any information that I have provided. Furthermore, I **consent/do not consent (please delete one)** to the principle researcher using my journal as part of the data collection for this study.

NAME (please print): .....

Signature:

Date:

Appendix E – Demographic Data

THIS QUESTIONNAIRE IS COMPLETELY CONFIDENTIAL AND WILL ONLY BE USED FOR THE CURRENT STUDY. THESE DETAILS WILL ONLY BE VIEWED BY THE PRINCIPLE RESEARCHER.

Code _____

Age _____ M/F (circle one) Ethnicity _____

1. Are you currently on medication (Y/N, circle one) If yes, please describe

   _____

   _____

2. Have you ever received a diagnosis for any psychological disorder (Y/N, circle one) If yes, please describe

   _____

   _____

3. Are you currently undergoing counselling or therapy (Y/N, please circle one)
4. Have you ever tried to harm yourself (Y/N, please circle one)
5. Have you ever attempted suicide (Y/N, please circle one)
6. Do you drink when you are stressed (Y/N, please circle one)
7. Do you take drugs when you are stressed (Y/N, please circle one)
8. Do you take drugs for recreation and pleasure (Y/N, please circle one)
9. How much do you drink a week on average? Please describe

   _____

   _____

Code_____

Appendix F: Penn State Worry Questionnaire (PSWQ)

Enter the number that best describes how typical or characteristic each item is of you, putting the number next to the item.

1	2	3	4	5
not at all typical		Somewhat typical		Very typical

1. If I don't have enough time to do everything, I don't worry about it _____
2. My worries overwhelm me _____
3. I do not tend to worry about things _____
4. Many situations make me worry _____
5. I know I shouldn't worry about things, but I just cannot help it _____
6. When I am under pressure, I worry a lot _____
7. I am always worry about something _____
8. I find it easy to dismiss worrying thoughts _____
9. As soon as I finish one task, I start worry about everything else I have to do _____
10. I never worry about anything _____
11. When there is nothing more I can do about a concern, I don't worry about it anymore_____
12. I've been a worrier all my life _____
13. I notice that I have been worrying about things _____
14. Once I start worrying, I can't stop _____
15. I worry all the time _____
16. I worry about projects until they are done _____

Appendix G – State/Trait Anxiety Questionnaire

SELF-EVALUATION QUESTIONNAIRE

Developed by Charles D. Spielberger
in collaboration with
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs

STAI Form Y-1

Name _____ Date _____ S ____

Age _____ Sex: M ____ F ____ T ____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel *right* now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	①	②	③	④
2. I feel secure	①	②	③	④
3. I am tense	①	②	③	④
4. I feel strained	①	②	③	④
5. I feel at ease	①	②	③	④
6. I feel upset	①	②	③	④
7. I am presently worrying over possible misfortunes	①	②	③	④
8. I feel satisfied	①	②	③	④
9. I feel frightened	①	②	③	④
10. I feel comfortable	①	②	③	④
11. I feel self-confident	①	②	③	④
12. I feel nervous	①	②	③	④
13. I am jittery	①	②	③	④
14. I feel indecisive	①	②	③	④
15. I am relaxed	①	②	③	④
16. I feel content	①	②	③	④
17. I am worried	①	②	③	④
18. I feel confused	①	②	③	④
19. I feel steady	①	②	③	④
20. I feel pleasant	①	②	③	④

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SELF-EVALUATION QUESTIONNAIRE

STAI Form Y-2

Name _____ Date _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS
21. I feel pleasant	①	②	③	④
22. I feel nervous and restless	①	②	③	④
23. I feel satisfied with myself	①	②	③	④
24. I wish I could be as happy as others seem to be	①	②	③	④
25. I feel like a failure	①	②	③	④
26. I feel rested	①	②	③	④
27. I am "calm, cool, and collected"	①	②	③	④
28. I feel that difficulties are piling up so that I cannot overcome them	①	②	③	④
29. I worry too much over something that really doesn't matter	①	②	③	④
30. I am happy	①	②	③	④
31. I have disturbing thoughts	①	②	③	④
32. I lack self-confidence	①	②	③	④
33. I feel secure	①	②	③	④
34. I make decisions easily	①	②	③	④
35. I feel inadequate	①	②	③	④
36. I am content	①	②	③	④
37. Some unimportant thought runs through my mind and bothers me	①	②	③	④
38. I take disappointments so keenly that I can't put them out of my mind	①	②	③	④
39. I am a steady person	①	②	③	④
40. I get in a state of tension or turmoil as I think over my recent concerns and interests	①	②	③	④

Appendix H – Emotion Control Questionnaire (I-RS)

CODE: *Gender:* *Age:*

Instructions : Indicate how you feel about each item by circling either "TRUE" or "FALSE". If an item is neither entirely true nor false, choose the alternative most like you. If you haven't been in the situation, please say how you feel you would behave in that situation.

1. I remember things that upset me or make me angry for a long time afterwards.	TRUE FALSE
2. I don't bear a grudge - when something is over, it's over, and I don't think about it again.	TRUE FALSE
3. When someone upsets me, I try to hide my feelings.	TRUE FALSE
4. Some people need somebody to confide in but I prefer to solve my own problems.	TRUE FALSE
5. I get worked up just thinking about things that have upset me in the past.	TRUE FALSE
6. I often find myself thinking over and over about things that make me angry.	TRUE FALSE
7. Even when I feel upset about something I don't feel the need to talk to anyone about it.	TRUE FALSE
8. People find it difficult to tell whether I'm excited about something or not.	TRUE FALSE
9. I like to talk problems over to get them off my chest.	TRUE FALSE
10. I feel vulnerable if I have to ask other people for help.	TRUE FALSE
11. In the past I have found a problem easier to solve if I have talked it over with someone.	TRUE FALSE
12. It is good to hear problems out loud.	TRUE FALSE
13. If I receive bad news in front of others I usually try to hide how I feel.	TRUE FALSE
14. It helps to discuss a problem even if it is impossible to reach a solution.	TRUE FALSE
15. I seldom get preoccupied with worries about my future.	TRUE FALSE
16. I have friends who I know would help me but I find it difficult to ask.	TRUE FALSE

17. I seldom show how I feel about things. TRUE FALSE

18. If I see something that frightens or upsets me, it stays in my mind for a long time afterwards. TRUE FALSE

19. I think people show their feelings too easily. TRUE FALSE

20. My failures give me a persistent feeling of remorse. TRUE FALSE

21. When something upsets me I prefer to talk to someone about it than to bottle it up. TRUE FALSE

22. For me, the future seems to be full of troubles and problems. TRUE FALSE

23. There are some situations in which I am unable to confide in anybody. TRUE FALSE

24. I often feel as if I'm just waiting for something bad to happen. TRUE FALSE

25. When I am reminded of my past failures, I feel as if they are happening all over again. TRUE FALSE

26. If I get angry or upset I usually say how I feel. TRUE FALSE

27. Sometimes I have to force myself to concentrate on something else to keep distressing thoughts about the future out of my mind. TRUE FALSE

28. Intrusive thoughts about problems I'm going to have to deal with make it difficult for me to keep my mind on a task. TRUE FALSE

29. I don't feel embarrassed about expressing my feelings. TRUE FALSE

30. I don't let a lot of unimportant things irritate me. TRUE FALSE

31. I wish I could banish from my mind the memories of past failures. TRUE FALSE

32. I am unable to trust anybody with my problems. TRUE FALSE

33. I am afraid that if I confide in someone they will tell my problems to others. TRUE FALSE

34. I never get so involved thinking about upsetting things that I am unable to feel positive about the future. TRUE FALSE

35. I am not afraid to ask somebody for help. TRUE FALSE

36. I worry less about what might happen than most people I know. TRUE FALSE

37. It takes me a comparatively short time to get over unpleasant events. TRUE FALSE

38. Sometimes I am unable to confide even in someone who is close to me. TRUE FALSE

39. Any reminder about upsetting things brings all the emotion flooding back. TRUE FALSE

D. Roger (2000)

Appendix I – Coping Styles Questionnaire (CSQ)

CSQ(3)

Code: *Age:* *Gender:*

Instructions: Although people may react in different ways to different situations, we all tend to have a characteristic way of dealing with things which upset us. How would you describe the way you typically react to stress? Circle **Always (A)**, **Often (O)**, **Sometimes (S)**, or **Never (N)** for **each** item below:

1.	Feel overpowered and at the mercy of the situation.	**A**	**O**	**S**	**N**
2.	Work out a plan for dealing with what has happened.	**A**	**O**	**S**	**N**
3.	See the situation for what it actually is and nothing more.	**A**	**O**	**S**	**N**
4.	Become miserable or depressed.	**A**	**O**	**S**	**N**
5.	Feel that no-one understands.	**A**	**O**	**S**	**N**
6.	Do not see the problem or situation as a threat.	**A**	**O**	**S**	**N**
7.	Feel that you are lonely or isolated.	**A**	**O**	**S**	**N**
8.	Take action to change things.	**A**	**O**	**S**	**N**
9.	Feel helpless - there's nothing you can do about it.	**A**	**O**	**S**	**N**
10.	Try to find out more information to help make a decision about things.	**A**	**O**	**S**	**N**
11.	Keep things to myself and not let others know how bad things are.	**A**	**O**	**S**	**N**
12.	Feel independent of the circumstances.	**A**	**O**	**S**	**N**
13.	Sit tight and hope it all goes away.	**A**	**O**	**S**	**N**
14.	Take my frustrations out on the people closest to me.	**A**	**O**	**S**	**N**
15.	Resolve the issue by not becoming identified with it.	**A**	**O**	**S**	**N**
16.	Respond neutrally to the problem.	**A**	**O**	**S**	**N**

17.	Pretend there's nothing the matter, even if people ask.	A	O	S	N
18.	Get things into proportion - nothing is really that important.	A	O	S	N
19.	Believe that time will somehow sort things out.	A	O	S	N
20.	Feel completely clear-headed about the whole thing.	A	O	S	N
21.	Try to keep a sense of humour - laugh at myself or the situation.	A	O	S	N
22.	Keep thinking it over in the hope that it will go away.	A	O	S	N
23.	Believe that I can cope with most things with the minimum of fuss.	A	O	S	N
24.	Daydream about things getting better in future.	A	O	S	N
25.	Try to find a logical way of explaining the problem.	A	O	S	N
26.	Decide it's useless to get upset and just get on with things.	A	O	S	N
27.	Feel worthless and unimportant.	A	O	S	N
28.	Trust in fate - that things will somehow work out for the best.	A	O	S	N
29.	Use my past experience to try to deal with the situation.	A	O	S	N
30.	Try to forget the whole thing has happened.	A	O	S	N
31.	Become irritable or angry.	A	O	S	N
32.	Just give the situation my full attention.	A	O	S	N
33.	Just take one step at a time.	A	O	S	N
34.	Criticise or blame myself.	A	O	S	N
35.	Pray that things will just change.	A	O	S	N
36.	Think or talk about the problem as if it did not belong to me.	A	O	S	N
37.	Talk about it as little as possible.	A	O	S	N
38.	Prepare myself for the worst possible outcome.	A	O	S	N
39.	Look for sympathy from people.	A	O	S	N

40. See the thing as a challenge that must be met. **A O S N**

41. Be realistic in my approach to the situation. **A O S N**

Appendix J – Traumatic Events Questionnaire (TEQ)

Event Scale-Civilian Code: _____

DIRECTIONS: This questionnaire is comprised of a variety of traumatic events that you may have experienced.

For each of the following "numbered" questions, indicate whether or not you experienced the event. If you have experienced one of the events, circle "Yes" and complete the "lettered" items immediately following it that ask for more details. If you have not experienced the event, circle "No" and go to the next "numbered" item.

No Yes 1. Have you been in or witnessed a <u>serious</u> industrial, farm, or car accident, or a large fire or explosion?

a. How many times? once twice three +

b. How old were you at that time(s)? 1st ____ 2nd ____ 3rd ____

c. Were you injured?

Not at all Severely

1 2 3 4 5 6 7

d. Did you feel your life was threatened?

Not at all Extremely

1 2 3 4 5 6 7

e. How traumatic **<u>was</u>** this for you at that time?

Not at all Extremely

1 2 3 4 5 6 7

f. How traumatic **<u>is</u>** this for you now?

Not at all Extremely

1 2 3 4 5 6 7

g. What was the event? _____

No Yes 2. Have you been in a natural disaster such as a tornado, hurricane, flood or major earthquake?

a. How many times? once twice three +

b. How old were you at that time(s)? 1st____ 2nd____ 3rd____

c. Were you injured?

Not at all Severely

1 2 3 4 5 6 7

d. Did you feel your life was threatened?

Not at all Extremely

1 2 3 4 5 6 7

e. How traumatic **was** this for you at that time?

Not at all Extremely

1 2 3 4 5 6 7

f. How traumatic **is** this for you now?

Not at all Extremely

1 2 3 4 5 6 7

g. What was the event? _____

No Yes 3. **Have you been a victim of a violent crime such as rape, robbery, or assault?**

a. How many times? once twice three +

b. How old were you at that time(s)? 1st____ 2nd____ 3rd____

c. Were you injured?

Not at all Severely

1 2 3 4 5 6 7

d. Did you feel your life was threatened?

Not at all Extremely

1 2 3 4 5 6 7

e. How traumatic **was** this for you at that time?

Not at all Extremely

1 2 3 4 5 6 7

f. How traumatic **is** this for you now?

Not at all Extremely

1 2 3 4 5 6 7

g. What was the crime? _____

No Yes 4. **As a child, were you the victim of either physical or sexual abuse?**

a. How old were you when it began? _____

b. How old were you when it ended? _____

c. Were you injured?

Not at all Severely

1 2 3 4 5 6 7

d. Did you feel your life was threatened?

Not at all Extremely

1 2 3 4 5 6 7

e. How traumatic **was** this for you at that time?

Not at all Extremely

1 2 3 4 5 6 7

f. How traumatic **is** this for you now?

Not at all Extremely

1 2 3 4 5 6 7

g. Was the assailant male or female? Male Female

h. Check (Y) all categories that describe the experience . . .

physical abuse

there was sexual penetration of the mouth, anus or vagina

there was no sexual penetration, but the assailant attempted to force you to complete such an act

there was some other form of sexual contact e.g., touched Your sexual organs, or forced to touch assailant's sexual organs

no sexual contact occurred, however, the assailant attempted to touch your sexual organs, or make you touch his/her sexual organs

No Yes 5. <u>As an adult</u>, have you had any unwanted sexual experiences that involved the threat or use of force?

→ a. How many times? once twice three +

b. How old were you at that time(s)? 1st____ 2nd____ 3rd____

c. Were you injured?

Not at all Severely

1 2 3 4 5 6 7

d. Did you feel your life was threatened?

Not at all Extremely

1 2 3 4 5 6 7

e. How traumatic **<u>was</u>** this for you at that time?

Not at all Extremely

1 2 3 4 5 6 7

f. How traumatic **<u>is</u>** this for you now?

Not at all Extremely

1 2 3 4 5 6 7

g. Was the assailant male or female? Male Female

h. Check (Y) all categories that describe the experience . . .

there was sexual penetration of the mouth, anus, or vagina

there was no sexual penetration, but the assailant attempted to force you to complete such an act

there was some other form of sexual contact e.g., touched your sexual organs, or forced to touch assailant's sexual organ

no sexual contact occurred, however, the assailant attempted to

touch your sexual organs, or make you touch his/her sexual organs

No Yes 6. **<u>As an adult</u>, have you ever been in a relationship in which you were abused either physically or otherwise?**

a. How old were you when it began? _____
b. How old were you when it ended? _____
c. Were you injured?
Not at all Severely
1 2 3 4 5 6 7
d. Did you feel your life was threatened?
Not at all Extremely
1 2 3 4 5 6 7
e. How traumatic **<u>was</u>** this for you at that time?
Not at all Extremely
1 2 3 4 5 6 7
f. How traumatic **<u>is</u>** this for you now?
Not at all Extremely
1 2 3 4 5 6 7

No Yes 7. **Have you witnessed someone who was mutilated, seriously injured, or violently killed?**

a. How many times? once twice three +
b. How old were you at that time(s)? 1st____ 2nd____ 3rd____
c. Were you injured?
Not at all Severely
1 2 3 4 5 6 7
d. Did you feel your life was threatened?
Not at all Extremely
1 2 3 4 5 6 7
e. How traumatic **<u>was</u>** this for you at that time?
Not at all Extremely
1 2 3 4 5 6 7
f. How traumatic **<u>is</u>** this for you now?
Not at all Extremely
1 2 3 4 5 6 7

No Yes 8. **Have you been in serious danger of losing your life or of being seriously injured?**

a. How many times? once twice three +
b. How old were you at that time(s)? 1st____ 2nd____ 3rd____
c. Were you injured?
Not at all Severely
1 2 3 4 5 6 7
d. Did you feel your life was threatened?

Not at all Extremely
1 2 3 4 5 6 7

e. How traumatic **was** this for you at that time?
Not at all Extremely
1 2 3 4 5 6 7

f. How traumatic **is** this for you now?
Not at all Extremely
1 2 3 4 5 6 7

g. What was the event? _____

No Yes **9. Have you received news of the mutilation, serious injury, or violent or unexpected death of someone close to you?**

a. How many times? once twice three +

b. How old were you at that time(s)? 1st____ 2nd____ 3rd____

c. What relation was this person to you? _____

d. Did you feel your life was threatened?
Not at all Extremely
1 2 3 4 5 6 7

e. How traumatic **was** this for you at that time?
Not at all Extremely
1 2 3 4 5 6 7

f. How traumatic **is** this for you now?
Not at all Extremely
1 2 3 4 5 6 7

No Yes **10. Have you ever had any other very traumatic event like these?**

a. How many times? once twice three +

b. How old were you at that time(s)? 1st____ 2nd____ 3rd____

c. Were you injured?
Not at all Severely
1 2 3 4 5 6 7

d. Did you feel your life was threatened?
Not at all Extremely
1 2 3 4 5 6 7

e. How traumatic **was** this for you at that time?
Not at all Extremely

1 2 3 4 5 6 7

f. How traumatic **is** this for you now?
Not at all Extremely
1 2 3 4 5 6 7

g. What was the event? _____

No Yes 11. **Have you had any experiences like these that you feel you can't tell about? (note: you don't have to describe the event.)**

→ a. How many times? once twice three +
b. How old were you at that time(s)? 1st____ 2nd____ 3rd____
c. Were you injured?
Not at all Severely
1 2 3 4 5 6 7

d. Did you feel your life was threatened?
Not at all Extremely
1 2 3 4 5 6 7

e. How traumatic **was** this for you at that time?
Not at all Extremely
1 2 3 4 5 6 7

f. How traumatic **is** this for you now?
Not at all Extremely
1 2 3 4 5 6 7

If you answered "Yes" to one or more of the questions above, which was the **MOST** traumatic thing to have happened to you? Fill in the number of the question (e.g., #2 for natural disaster). _____

Did you answer **Yes** to more than one question above while thinking about the same event? Yes No
If yes, which items refer to the same event? _____

Go on to the next page and answer the PTSD Checklist based on your responses to the **most traumatic event** you reported. (you won't need to give any more details about the event).

ɔɔɔɔɔɔɔɔɔɔɔɔɔɔɔɔɔɔɔɔɔɔɔɔɔ

If you answered "No" to all questions, describe briefly the most traumatic thing to happen to you._____

a. How many times? once twice three +
b. How old were you at that time(s)? 1st___ 2nd___ 3rd___
c. Were you injured?

Not at all Severely
1 2 3 4 5 6 7

d. Did you feel your life was threatened?

Not at all Extremely
1 2 3 4 5 6 7

e. How traumatic **was** this for you at that time?

Not at all Extremely
1 2 3 4 5 6 7

f. How traumatic **is** this for you now?

Not at all Extremely
1 2 3 4 5 6 7

Go on to the next page and answer the PTSD Checklist based on this event.

Appendix K – PCL-C

Code_____

nstructions: Below is a list of problems and complaints that people sometimes have in response to stressful ife experiences. Please read each one carefully, then circle one of the numbers to the right to indicate how nuch you have been bothered by that problem in the past month.

	Not at all	*A little bit*	*Moderately*	*Quite a bit*	*Extremely*
Repeated, disturbing *memories, thoughts, or images* of a stressful experience from the past?	1	2	3	4	5
Repeated, disturbing *dreams* of a stressful experience from the past?	1	2	3	4	5
Suddenly *acting or feeling* as if a stressful experience from the past *were happening again* (as if you were reliving it)?	1	2	3	4	5
Feeling *very upset* when *something reminded you* of a stressful experience from the past?	1	2	3	4	5
Having *physical reactions* (e.g., heart pounding, trouble breathing, sweating) when *something reminded you* of a stressful experience from the past?	1	2	3	4	5
Avoiding *thinking about or talking about* a stressful experience from the past or avoiding *having feelings* related to it?	1	2	3	4	5
Avoiding *activities or situations* because *they reminded you* of a stressful experience from the past?	1	2	3	4	5
Trouble *remembering important parts* of a stressful experience from the past?	1	2	3	4	5
Loss of interest in activities that you used to enjoy?	1	2	3	4	5
Feeling *distant or cut off* from other people?	1	2	3	4	5
Feeling *emotionally numb* or being unable to have loving feelings for those close to you?	1	2	3	4	5
Feeling as if your *future* somehow will be *cut short*?	1	2	3	4	5
Trouble *falling or staying asleep*?	1	2	3	4	5
Feeling *irritable* or having *angry outbursts*?	1	2	3	4	5
Having *difficulty concentrating*?	1	2	3	4	5

Being "*superalert*" or watchful or on guard?	1	2	3	4	5
Feeling *jumpy* or easily startled?	1	2	3	4	5

PCL-C for DSM-IV (11/1/94) Weathers, Litz, Huska, & Keane National Center for PTSD - Behavioral Science Division

Appendix L – Participants Instructions for Writing Phase

Experimental Group Writing Instructions

(***First writing day***): For the next three days I would like you to write about your very deepest thoughts and feelings about your most distressing current worry/worries that you have. You can write about the same worry on all three days or about different worries each day. Whatever you chose to write however, it is critical that you really let go and explore your very deepest emotions and thoughts. Remember that you have three days to write. Again, in your writing, examine your deepest emotions and thoughts surrounding your most distressing current worry/worries. All of your writing will be completely confidential.

(***On the second day of writing***): How did yesterday's writing go? Today, I want you to continue to write about the most distressing current worry/worries you have. It could be that worry you wrote about yesterday or it could be about another distressing worry. But today, I really want you to explore your very deepest emotions and thoughts.

(***On the third day of writing***): Today is the last writing session. In your writing today, I want you to continue to write about the most distressing current worry/worries you have. Remember that it is the last day and so you might want to wrap everything up. For example, how is this current worry or worries related to your current life and future? But feel free to go in any direction you feel most comfortable with and delve into your deepest emotions and thoughts.

Control Group Writing Instructions

(***First writing*** day): For the next three days, I would like you to write on how you use your time. Each day I will give you different writing assignments on the way you spend your time. I am not interested in your emotions or opinions, just try to be completely objective. Feel free to be as detailed as possible. In today's writing, I want you to describe what you did yesterday from the time you got up until the time you went to bed. For example, you could include the things you ate, where you went, which buildings or objects you passed by as you walked from place to place. The most important thing in your writing is for you to describe your day as accurately and as objectively as possible. All of your writing will be completely confidential.

(***On the second day of writing***): How did your writing go yesterday? Today, I would like you to describe what you have done since you woke up. Again, I want you to be as objective as possible.

(***On the third day of writing***): This is the last day of the writing sessions. In your writing today, I would like you to describe what you will be doing over the next week. Again, be as objective as possible.

Appendix M – End of Experiment Information Sheet

Annmaree Kingi,
C/- Psychology Department,
University of Canterbury.

Contact Details:
Aki16@student.canterbury.ac.nz.
Phone number: extn 7098

To Participants:

Thank-you for participating in this writing research. This study was based on a writing design by James W. Pennebaker who has conducted this type of research on students just beginning their academic studies and other individuals who have experienced loss or disaster. His results have found that by writing about trauma people have experience a reduction in health centre visits, improvement in university grades and general psychological well-being. Other researchers have also used this writing design with similar results. Pennebaker and others believe that writing about important matters makes meaning of the emotions people experience and thus reducing the need to avoid awful thoughts or images. The research that you participated in will look at the data provided by you to assess whether writing about current worries will reduce them and the anxiety associated with worrying. Should the results show that this is the case then this will have implications for the treatment of a disorder called Generalised Anxiety Disorder and its symptoms of excessive worrying and anxiety. It is hoped that the data from questionnaires related to coping and past trauma will shed some light on why some people develop Generalised Anxiety Disorder and provide evidence that perhaps writing about past trauma will help those who do not experience any benefit from writing about current worries. This data may also be used as a platform for research at doctoral level for the principle researcher of this project. If you have any questions or would like to receive the data from this study, please contact the researcher.

Yours sincerely,
Annmaree Kingi.